Ladner7L.ST25.txt SEQUENCE LISTING

LADNER, Charles C. GUTERMAN, Sonia K. ROBERTS, Bruce L. MARKLAND, William MEY, Arthur C. RENT, Rachel B. ·:120.· DIRECTED EVOLUTION OF NOVEL BINDING PROTEINS -(130) LADNER=7L -01400 09/896,095 <d1410</pre> +150> 08/415,923 +151: 1995-03-04 -:1505 087009,319 $\cdot (151^{-1} - 1993 + 01 + 26$ +3150+ 07/664,953 +3151+ 1991-03+01 H150 - 08/993,776 %151 + 1997-13-13 +160 + ... 174

1700 Patentin version 3.2

+02100+ 3 +0011+ 18 -0011+ PRT UMB - Artificial

<12200 s #223 * synthetic - zinc finger consensus

<2220 -

+D.lo misc feature
+D.lo (2)..(2)
+D.lo Maa can be any naturally occurring amino acid

H210 H211 - misc_feature
H111 - H41..(5)
H113 - Haa can be any naturally occurring amino acid

Filts
Figure
Filt: misc_feature
Filt: (7)..(9)
Filt: Maa can be any naturally occurring amino acid

+C.S. + (11)...(15) +C.S. + Xaa can be any naturally occurring amino acid

http://wist_feature H222 / (17, \bar{1}, (16))

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Ladner7L.ST25.txt
   +3235 Maa can be any naturally occurring amino acid
   + 2.70 ×
   %21: misc_feature
%20)..(22)
     CLASS Mass can be any naturally occurring amino acid
   - 22D
   surface Maa can be any naturally occurring amino acid
  Parties 1
  Fre Kaa Cys Maa Kaa Cys Xaa Maa Maa Phe Maa Maa Xaa Xaa Leu
  Mga Maa His Maa Maa Maa His Maa Maa Maa Maa
  *Clux C
*Cllx Cx
*Clcx PRT
*Clrx Artificial
 4.0210-
 -::13 - synthetic - zinc finger consensus
 7020 F
 ...1 misc_feature
 +21. + (1).\overline{\Gamma}(2) = 22% - 23a can be any naturally occurring amino acid
 1.120 E
 40.20.
> [.60 | v.] 
the to Maa can be any naturally occurring amino acid
 4 J. 250 A
... risc feature
+3.2 + (17)^{-}.(17)

    No Xia can be any naturally occurring amino acid

+2.00 +
+2.1 + risc_feature
+2.21 + 2.0)..(22)
+2.11 + Xaa can be any naturally occurring amino acid
+136 + 135_feature +211 + (14)..(28)
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Ladner7L.ST25.txt
+223> Maa can be any naturally occurring amino acid
(-,\frac{4}{4})^*(i)) \rightarrow (-,\frac{1}{2})
 Tyr Maa Cys Maa Maa Cys Maa Maa Maa Phe Maa Maa Maa Maa Maa Leu
                                              1.0
Maa Maa His Maa Maa Kaa His Maa Maa Maa Maa Maa
+110 + 3
+211 + 39
+111 + PFT
+213 + Artificial
< 22000
-223 - synthetic - zinc finger consensus
Public
Public misc_feature
Public (2)..(2)
Public Naa can be any naturally occurring amino acid
1000
Mulli musc feature
+0.0+ (4).T(6) +1000 . Mad can be any naturally occurring amino acid
8 2214
rull: misc_feature
rull: (12)..(16)
First Maa can be any naturally occurring amino acid
rcco.
cli: risc_feature
rccit (13)..(19)
Hala can be any naturally occurring amino acid
1.020
coll risc feature
coll (11)...23)
clif Maa can be any naturally podurring amino acid
4 22 ft 4
+=:10 misc_feature
+...(2+...(....)\overline{1...(29)}
{\mathcal K}_{\text{max}}^{-1} = \Sigma_{\text{max}} can be any naturally occurring amino acid
From Maa Cys Xaa Maa Maa Cys Xaa Maa Xaa Phe Maa Maa Xaa Maa Xaa
Luu Maa Maa His Maa Maa Maa His Maa Maa Maa Maa Maa
              20
```

Page 3

```
+ 010> 4
+ 011+ 29
+ 010+ PET
     .1 · Artificial
  · .:2:. ·
  ·.?·· synthetic - zinc finger consensus
    Fig. (2). \overline{\Lambda} (2) Fig. (2) results a constant of the second of the s
 / 23.0 /
/ 23.0 *
/ 43.0 *
                          misc feature
                          (4) .. (6)
  +227 - Waa can be any naturally occurring amino acid
  . . . . . .
 \pm 22^{3} \pm 100 Maa can be any naturally occurring amino acid
  - I. Dr. -
  100\% . Maa can be any naturally obsurring amino acid
 - 2000 c
    .::1: nisc_feature
    1.1. · (18) T. +19.
    Id: Waa can be any naturally ocurring amino acid
     137.
    121 - misc_feature
    . . . . . . . .
                            (1) \dots (23)
     With Maa can be any naturally occurring amino acid
    130 - 
131 - misc_feature
211 - :15)...29)
213 - Xaa can be any naturally occurring aminc acid
  - 455 - 4
  Tyr Maa Cys Maa Maa Maa Cys Maa Maa Maa Phe Maa Maa Maa Maa Maa
                                                                                                                                   10
 1⊎u Maa Maa His Kaa Xaa Xaa His Maa Xaa Xaa Maa
                                           20
                                                                                                                    25
00100 5
01110 30
01110 PET
01110 Artificial
+ .20 + symthetic - zinc finger consensus
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::22a>
 didl: misc_feature
 \pm 2222 + (2).7(2)
 HARRY Maa can be any naturally accurring amino acid
 127 7 Car
 This misc_feature
This (4)..(")
This Man can be any naturally occurring amino acid
Hill He Has can be any naturally occurring amine acid
 %2140
%2110 misc_feature
%2130 (15)..(17)
%3130 Mas can be any naturally occurring amino acid
Fig. ():
Fig

</p
  (2... + ... 2) \overline{...} (24)
 Holder Maa can be any naturally occurring amino acid
 cil()
cil()
m.sc_feature
co.oc = (.6)T./30)
                       Has can be any naturally occurring amino acid
    14000 S
  Pho Maa Cys Xaa Kaa Maa Xaa Cys Kaa Xaa Maa Phe Kaa Xaa Xaa Xaa
 Maa Deu Maa Xaa His Maa Xaa Kaa His Xaa Maa Xaa Kaa Xaa
                                            20
   11101 4
 -. 1. PET
   1.1:00 Artificial
    1.1
    Light synthetic - zunc finger cansensus
   Fill! misc_feature
 +12.2.23
+12.2.31
                       (2)..(2)
                       - Maa can be any naturally occurring amino acid
   1...101+
   1...1 - misc_feature
1...2(- 4)...(7)
 K1237 Kaa can be any naturally occurring amino acid
                                                                                                                                          Page 5
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413330.4
HUU1 - misc feature
+i\hbar.i\hbar \leftarrow (9).\overline{.}(11)
HALLY Xua can be any naturally occurring amino acid
Hitting
H
C.S. 1 - Maa can be any naturally occurring amino acid
%1.1 * misc_feature
%222 * (19)..(20)
HOLL: Mus can be any naturally occurring amine acid
\cdot, \cdot, \cdot, \cdot, \cdot mist_feature
(22). (24)
Fig. 7.8 Maa can be any naturally accurring amino acid
m.sc_feature
                       _6)..(3C)
SL. Was can be any naturally occurring amine acid
34 Table 5
 Tyr Maa Dys Xaa Kaa Maa Xaa Cy. Maa Xaa Xaa Phe Xaa Xaa Xaa Xaa
Maa Deu Maa Xaa His Maa Xaa Xaa His Xaa Xaa Xaa Xaa Xaa
                                       20
                                                                                                       25
*10.1 .* T
*1.11.2 &
*1.11.2 PET
 11:1: Artificial
Hit. 1/
Hit misc_feature
 -fill 1 - . . . (1)
All. The Maa can be any naturally occurring amino acid
 : · · · ·
42.2.2. misc_feature
  ....
                     THE Xaa can be any naturally occurring amino acid
-1111 (11)
misc_feature
+322.7 - (3).7(8)
422% - Xaa can be any naturally occurring amino acid
<4000 - 7
Xaa Cys Xaa Xaa Xaa Cys Xaa
```

```
· 210 · 8
×211 · 12
· d12 · PRT
· .:1: Artificial
· .:20 ·
+...3 · synthetic - variegated linker for Lam B, between codons 153/154
 - 1.20 ·
+3200 +
<di>:021 - misc_feature
<:322 + (5).T(8)</pre>
#223 Maa can be any naturally occurring amino acid

    200 -

· 221 · rusc feature
+222 + (10) \overline{.} (10)
+223 - Maa can be any naturally occurring amino acid
400 - 8
Oly Ash Maa Cys Maa Maa Maa Maa Cys Maa Ser Gly
                                        1.0
\pm 0.110 \pm 0.9
Fill + 4
.l. * PHT
+II + Artificial
8 220 m
synthetic - portion of M13 gene VIII protein
+ 450p.+ 9
Mot Lys Lys Ser
ully 10
vully 5
vully PRT
vully Artificial
- L14-
+123 - synthetic - interdomain linker
· 400 - 10
Glu Gly Gly Gly Ser
+ 0100+ 11
+ 0100+ 15
+ 0100+ PAT
-213: Artificial
```

```
-1220.-
-13.33 - synthetic - interdomain linker
4400 - 11
Glu Gly Gly Ser Gly Ser Ser Ser Leu Gly Ser Ser Ser Leu
· 100 12
1110 4
-010- PPT
· 113. Artificial
+ 1100+
+.2030+ synthetic - 39-42 segment of human ITI-D1
+1400.+ 12
Met Gly Asn Gly
*a.110a+ 15
+:0111: 4
+:010: PFT
H2150 Artificial
-:::3: synthetic - 96-39 segment of trypsin
-1400F- 13
Jer Asn Thr Leu
+021q0+ 14
+02110+ 4
+0110+ PRT
+0013+ Artificial
+120.+
+123.+ synthetic - interdomain linker
*1600s 14
Gly Gly Gly Ser
%120.
%133. synthetic - interdomain linker
1400 - 15
Glu Gly Gly Gly Thr
```

```
+210> 16
+211> 5
+21.> FRT
+213> Astificial
 4 D. 10
 railer synthetic - interdomain linker
 16
 Oly Ser Ser Ser Leu
 +310 + 17
 - 211 - 11
- 212 - FRT
 · ll: A:tificial
 1. . synthetic, EGGGS linker at NarI site of gene of Table 113
-400 - 11
 Tly Gly Glu Gly Gly Gly Ser Ala Ala Glu Gly
+210 + 1:
+211 + 14
+211 + PFT
+213 + Artificial
 % 2.00 * 
% Synthetic, M13.3X11 junction
 400 18
 3.4 Gly Gly Gly Ser Gly Ser Ser Ser Leu Gly Ser Ser Ser Leu
+110+ 19
| Line | 16
| Line | 26
| Cline | PFT
| Line | Artificial
- 1. Sec.
synthetic - Class I microprotein library
.Clf :
.Cl : misc_feature
.Cl : (1).T(2)
.Clf : Xea can be any naturally occurring amino acid
..... Xaa can be any naturally occurring amino acid
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```
4221> misc_feature
4222. (9)..(10)
4223. Xaa can be any naturally occurring amino acid
4400 - 19
Mun Maa Mys Xaa Kaa Maa Xaa Cys Maa Xaa
:010 - 20
:011 - 13
:011 - PRT
 SCIES Artificial
2000
40^{\circ}23 \times synthetic, alpha conotoxir consensus
HDLD:
HDDD: misc_feature
\pm 1.1.1 \cdot (1) \cdot (1)
HILLS: Maa can be any naturally recurring amino acid
Higgs :
Higg feature
Higgs (4)..(6)
Higgs Maa can be any naturally occurring amino acid
( ( )
HUU1 + misc_feature
(-1)...(12)
Hall San Maa can be any naturally occurring amino acid
14.0
Maa Dys Oys Maa Maa Maa Cys Maa Maa Maa Maa Cys
+00100 001
+00110 14
+00110 PPT
Halle Artificial
 1225
+223 - synthetic, alpha conotoxin consensus
11 1
....l misc_feature
(1.10.1 - (1).7(1)
HATE Maa can be any naturally occurring amino acid
Hill :- misc_feature
Hill: (4)..(6)
+2230 - Maa can be any naturally occurring amino acid
1.1...(1)
Hull: misc feature
        8)..(12)
<2252 Maa can be any naturally occurring amino acid
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3220 A
200 B
        misc_feature
·12 2 2 3
        (14)..(14)
+2223 - Maa can be any naturally occurring amino acid
-1400 - 21
Haa Oys Oys Kaa Kaa Kaa Cys Kaa Kaa Kaa Kaa Kaa Cys Kaa
+0.10 + 0.2
+0.11 + 15
+0.10 + PRT
dilly Artificial
41. The
<!!!! synthetic, alpha conotoxin consensus</pre>
1/22/17
HLC1 - misc_feature
+1.23 \cdot (1).7(1)
Hills - Maa can be any naturally occurring amino acid
30220 ×
First misc feature (4).7(6) (2).7 (8) Maa can be any naturally occurring amino acid
%2.0.
%221 * misc_feature
%22.0 (8)..(12)
MARY - Maa can be any naturally occurring amine acid
Mil. .
Mill - misc_feature
(14)^{-}. (15)
 1.11. Maa can be any naturally occurring amino acid
4400 - 31
Man Cys Cys Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa
0010 - 20
0111 - 16
0111 - PFT
Artificial
%Live
synthetic, alpha conotoxir. consensus
· ....
HARL misc_feature
+10.000 (1)...(1)
FILE: Maa can be any naturally occurring amino acid
32227 - Xaa can be any naturally occurring amino acid
                                         Page 11
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K220+
....l.l · misc_feature
(8)...(12)
Hill: Maa can be any naturally occurring amino acid
· [1] ... . 1 ·
Mas can be any naturally occurring amino acid
Maa Oys Oys Kaa Maa Maa Cys Maa Maa Maa Maa Cys Maa Maa Maa
                                           10
H010+ 04
H011+ 17
H01+ PRT
H01+ Artificial
Public synthetic, alpha conotoxin consensus
+:226 + +:221 + misd_feature +:222 + (1)..(1)
Galacian Raw can be any naturally occurring amino acid
10.00 +
10.01 + misd_feature
10.01 + (4)...(6)
House Maa can be any naturally occurring amino acid
//dif = misc_feature
+/dif = (8)..(12)
+/dif = Xaa can be any naturally occurring amino acid
%1.ty*
%1.ty* misc_feature
%1.ty* %14)..(17)
This. Has can be any naturally occurring amino acid
44100 14
Mass Cys Cys Kaa Maa Maa Cys Maa Maa Maa Maa Maa Cys Maa Maa Maa I^{\rm 5}
Had
*110 · 15
•111* 18
+T112 PRT
+T133 Artificial
422C.
<223 >> synthetic, alpha conotoxin consensus
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(3.37%
 stable mist feature
 while \in (1)^+, \overline{\mathbb{T}}(1) while \in \mathbb{T} . Mad can be any naturally occurring amino acid
 -1.1.11 ·
Halls misc feature Halls (4)...(6) (2.35) Kaa can be any naturally occurring amino acid
  S. 24. 6
 %LU1+ misd_feature
%LU2+ %P)..(12)
 40.032 Maa can be any naturally occurring amino acid
Httl://misc_feature
H
 Kara Cys Cys Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa
 Kan Kaa
10.100 0.6
10.110 14
  1. 1. . PRT
  * loo Asidficial
A. We synthetic, alpha constoxin consensus
...ub
....ed misc_feature
...ib = 10...(2)
...ib Xaa can ke ar
                            Maa can be any naturally occurring amine acid
rusc_feature
                            5 . . . . . [7]
Hand the Maa can be any naturally occurring amino acid
-1.1_1.1x
-1.11_1.1y
-1.11_11y
                          misc feature
                            (3)...(13)
Hill the Maa can be any naturally occurring amino acid
-1400 1 116
 Maa Maa Cys Cys Maa Maa Maa Cys Maa Maa Maa Maa Maa Cys
+.100+ 27
+1.110+ 15
<2127+ PRT
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+113 · Artificial
  · ........ 1 ·
   \cdot \text{CF} \cdot \text{synthetic, alpha conotexin consensus}
  ......
-.... misc_f ature
   · 222 · (1) ...(3)
    (113). Kaa can be any naturally occurring amino acid
  misc feature
                         (5)..(7)
   82238 Maa can be any naturally occurring amino acid
   4278 A
  1923). Maa can be any naturally occurring amino acid
  5 July 1986
  misc_feature
                        (15)^{-}. (15)
                        Haa can be any naturally occurring amino acid
3 4 gales 197
  Maa Maa Cys Cys Maa Maa Maa Cys Maa Maa Maa Maa Maa Cys Maa
                                                                                                                          10
 :2102 28
:2112 16
:211 :1FT
    17 Artificial
3. C ×
synthetic, alpha conotoxin consensus
· 110
*: Discourse (1) ...(1) *: Discourse (2) ...(2) *: Discourse (2) ...(2) *: Discourse (2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(2) ...(
3. O. .
 ...ll = risc_feature
(0.01 + 0.05) \cdot ... (7)
1. juli
.... misc_feature
+.12+ (9)..(13) +.323+ Maa can be any naturally occurring amino acid
rill - misd_feature
ending Xaa can be any naturally occurring amino acid
. 11 . 23
```

 ${\tt Xaa}$ ${\tt Xaa}$ ${\tt Cys}$ ${\tt Cys}$ ${\tt Xaa}$ ${\tt Yaa}$

5

1

```
+ 210 > 29
+ 211 + 17
· DIL · PRT
 -313 · Artificial
 236.2
+32: - synthetic, alpha conotexin consensus
- 225.
+121 + misc_feature
+122 + (5)..(7)
+123 + Maa can be any naturally occurring amino acid
> 100 -
> 101 - rusc_feature
> 100 - (9)..(13)
> 200 - Xaa can be any naturally occurring amin: acid
- 120 -
+101 - misc feature
+202 - (15)7.(17)
+203 - Maa can be any naturally occurring amino acid
9.400 - 29
Har Haa Cys Cys Maa Maa Maa Cys Maa Maa Maa Maa Maa Cys Maa Maa
Жаа
>:10 > 50
>:111 > 16
>:212 > FRT
>:211 > Artifixial
1200
+233 - synthetic, alpha conotoxin consensus
1.13 - Maa can be any naturally occurring amino acid
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Ladner7L.ST25.txt
FREEN Maa can be any naturally obsurring amino abid
- 3.701-
· 221: misc_feature
\cdot 11.11 \cdot (15) \cdot ... (18)
Hamilton Maa can be any naturally occurring amino acid
30
🖂 🖂 Kaa Cys Cys Kaa Maa Maa Cys Maa Maa Kaa Maa Maa Cys Maa Maa
                                          10
Жаа Жаа
HOLDS 31
HOLDS 19
HOLDS PET
HOLDS Artificial
11 1 C ...
*NAR synthetic, alpha conotoxin consensus
7225.F
r:sc_feature
Fig. . (1). \overline{L}(2) . Maa can be any naturally obcurring amino acid
#220**
**LLT = misc_feature
**LLT = ''v)...(7)
Fig. () - Maa can be any naturally occurring amino acid
Hillion
Hillion misc_feature
Hillion (9)..(13)
 223 - Maa can be any naturally occurring amine acid
(223) Maa can be any naturally occurring amine acid
34103
Maa Maa Cys Cys Maa Maa Maa Cys Maa Maa Maa Maa Maa Cys Maa Maa
Жая Жаа Жаа
H210 + 30
H211 + 30
H210 + PRT
H213 + Artificial
 1257
<223. Synthetic, Mu conotoxin consensus
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-12.100
· All · misc feature
which (1).T(2) \times Maa can be any naturally occurring amino acid
- 1111 m
minit misc_feature
didd: (5)..(3)
\pm 22.3 \times Maa can be any naturally occurring amino acid
%2.4 **
%3.1 * misc_feature
%3.20 ** (11)..(14)
<223 - Maa can be any naturally occurring amino acid</p>
HIGH. misc_feature
HIGH. (16)..(19)
HIGH. Maa can be any naturally occurring amine acid
1,121.
0.11     misc_fwature
0.02(0.2)..(22)
Fig. 3. Maa can be any naturally occurring amino acid
H400 5.1
Maa Maa Cys Cys Kaa Maa Xaa Xaa Kaa Cys Kaa Xaa Xaa Xaa Cys Xaa l10 15
Maa Maa Maa Dys Cys Maa
20
PET
<115 Conus geographicus</pre>
1400 - 33
Any Asp Cys Cys Thr Pro Pro Lys Lys Cys Lys Asp Arg Gln Cys Lys
Pro Gln Arg Cys Cys Ala
. is Artificial
- <u>555</u>0.-
synthetic, omega conotoxin consensus
+12.00.
+12.00.
+12.00.
       misc_feature [2]..(7]
<\!\!22\% . Xaa can be any naturally occurring amino acid
                                             Page 17
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```
· []]) ·
 · 222. - misc feature
* 2200 *
· .... 1 · misc feature
 221 \times (17)^{-}. (19)
1. The Maa can be any naturally occurring amino acid
+.00 +
+.01 + mlsc_feature
+.020 + (.00)..(23)
        (30)^{-}.(23)
*123 * Waa can be any naturally occurring amino acid
74007 34
Tys Maa Maa Maa Maa Maa Cys Maa Maa Maa Maa Maa Maa Cys Cys
                                         10
Maa Maa Mys Maa Maa Maa Maa Cys
c.10 < .3
c.211 < .35
c.211 < .35
c.213 < .PST
c.213 < .Artificial</pre>
 0.20%
synthetic, smega conotoxir consensus
. 222 .
4013 - Waa can be any naturally eccurring amino acid
% 100 x
% 100 1 x misc_feature
% 100 1 x (3) ...(14)
+123+ Maa can be any naturally occurring amino acid
- 220 -
(x_{i}) = \sum_{i=1}^{n} (1, x_{i}) \cdot x_{i}
-_dll - risc_teature
\pm 0.05 \times (2.1) . (24) \pm 0.05 \times (2.1) . Xea can be any naturally occurring amino acid
+400+ 35
Cyr Xaa Xaa Xaa Xaa Xaa Cys Kaa Xaa Xaa Xaa Xaa Xaa Cys Cys
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Oys Of
```

```
+ 110 + 36
+ 111 + 25
HILLIAM PRT
Artificial
1. <u>1.</u> 1. 1.
and a synthetic, omega conctoxin consensus
- al 0 -
.001. misc_feature
.001. (M)..(14)
+123 - Maa can be any naturally occurring amino acid
 _____
- Did +
- Did = misc_feature
- Did = (D0)..(24)
- Lit = Maa can be any naturally occurring amine acid
\sim 4.60 \pm 0.56
Cys Haa Haa Haa Haa Haa Kaa Cys Haa Kaa Haa Kaa Kaa Kaa Cys Cys
Kaa kaa Cys Kaa Kaa Kaa Kaa Cys
        20
- #1144. 37
+311 + 36
+310 + FPT
-313 + Artificial
 +:...
-:..: risc_feature
+::: (2)...(7)
```

```
<12.20.5
-misc_feature
+:212:-(21)\overline{.}.(25)
+533 - Maa can be any naturally occurring amino acid
+410.- 37
Cys Maa Maa Maa Maa Maa Maa Cys Maa Maa Maa Maa Maa Maa Cys Cys
Maa Maa Maa Cys Maa Maa Maa Maa Cys 20
+1110 · 35
\pm 0.11 \pm -26
HARLES PET
+013 - Artificial
12226
FP13 - synthetic, omega conotoxin consensus
41220 ×
MUULL mist_fleature
Muull (2)..(7)
wifile. Maa can be any naturally topurring amino acid
-1220 ·
Fig. 21 - misc_feature
+0.02 - (0)..(14)
+0.03 - Maa can be any naturally +courring amino acid
REAL Real can be any naturally occurring amine acid
412.36 +
H221 · misc_feature
Figure (20)...(25) Figure 1. What can be any naturally occurring among acid
41400 + 35
Oys Maa Maa Maa Maa Maa Maa Oys Maa Kaa Kaa Xaa Xaa Xaa Cys Oys
Mus Maa Dys Maa Maa Maa Maa Maa Maa Dys
High 3 *
High 3 *
High 40 *
High PRT
High Artificial
7000 F
xiii: synthetic, omega conotoxin consensus
```

<2226 >

```
Add1 - misc feature
+1.1.12 + (2)...(7)
F.M.3 - Maa can be any naturally occurring amino acid
-12.20 ·
· 17 (1)
100 M
+331 / misc_feature
+332 + (21)..(26)
+223+ Maa can be any naturally occurring amino acid
-1400 - 39
Maa Maa Maa Cys Maa Maa Maa Maa Maa Maa Cys
HILLO + 40
HILLO + 14
HILLO + PRT
HILLO + Artificial
%.dd*
%llb* synthetic, metal finger protein library
\cdot 1220_{\rm c} \cdot
+301 - misc feature
+3135 (5).7(10)
+3135 Maa can be any naturally occurring aminc acid
-14000-40
{
m Hi}\,s Asn Gly Met Maa Maa Maa Maa Maa His Asn Gly Cys
Hillow 41
Hillio 14
Hillio PET
Hillo Artificial
- 11.00 m
ATTER Synthetic, metal finger protein library
H2.134 Kaa can be any naturally occurring amino acid
-:400 41
```

```
Cys Asn Gly Met Xaa Kaa Kaa Kaa Kaa Kaa His Asn Gly His
4310 → 43
1.111 - 15
+ClC+ PRT
+ClS+ Artificial
-3000 D
HUDBA synthetic, metal finger protein library
42204
FIGURE - misc_feature + GLIC + (4)...(4) + (2003 * Maa can be any naturally occurring amino acid
11110×
\begin{array}{ll} \text{ %.131.} & \text{m.sc\_feature} \\ \text{ %.13.} & \text{ (6)..(11)} \end{array}
Finite Maa can be any naturally occurring amino acid
× 400 × 40
His Gly Pro Kaa Met Xaa Xaa Xaa Xaa Xaa Kaa Kaa His Asn Gly Cys
+ 010 + 43
+ 111 + 15
+ 110 + PAT
+ 15 + Artificial
1
-223 - synthetic, metal finger protein library based on 440-461 of
        HARD90, Fig. 1
+400.0 - 43
Ser Asp Glu Ala Ser Gly Cys His Tyr Gly Val Leu Thr
·:2101 - 44
FRT
FILES bovine- Bos taurus
-.4000-44
Arg Pro Asp Phe Cys Leu Glu Fro Pro Tyr Thr Gly Pro Cys Lys Ala
                                             10
Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
               20
Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala 35 40 45
```

```
Ladner7L.ST25.txt
```

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 5.5

- · 210 · 45
- . 11 56
- 1.12 · PRT
- ...13 · Artificial
- 130 -
- *:33* synthetic EpiNE alpha (13-21)
- · 400 · 45
- Ary Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
- Met. Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
- Ene Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala 40
- Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55
- 110 + 46 +111 + 58 +112 + PFT

- -013 Artificial
- +...3 * synthetic EpiNE3 (13-21)
- + 400 + 46
- Ary Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Gly
- Fn- Fhe Ser Arg Tyr Phe Tyr Asm Ala Lys Ala Gly Leu Cys Gln Thr
- Fig. Val. Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala 35 40 45 40
- Gl: Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

- +210+ 47 +211+ 58 +212+ PET +.13+ Artificial
- . 10:
- Substitute EpiNE6 (13-21)

Arg Fro Asp Fhe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Gly 1 5 10 15

Pho Phe Gln Arg Tyr Phe Tyr Ash Ala Lys Ala Glv Leu Cys Gln Thr 25

Pho Val Tyr Gly Gly Cys Met Gly Ash Gly Ash Ash Phe Lys Ser Ala 35 40 45

Giu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 59

+0:100+ 48 +00110+ 58 +0010+ PET +0:130+ Artificial

- (u) _ (u) -

HUDD3: synthetic - EpiNE7 (13-21)

HI4001- 48

Ang Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Met Phe Ero Ang Tyr Phe Tyr Ash Ala Lys Ala Gly Leu Cys Gl
n Thr $20\,$

Phe Val Tyr Gly Sly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala ± 5 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50

+00100 49 +00110 58 +00100 PEN

4213 Artificial

TUDE: synthetic - EpiNE4 (13-01)

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 $$^{\circ}$$ 10 $$^{\circ}$$ 15

Ile Phe Pro Arg Tyr Phe Tyr Ash Ala Lys Ala Gly Leu Cys Gln Thr 20 95 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala 35 $-40\,$

Page 24

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

R2109 50

-0112 58

1. PFT

1.10 Artificial

-12200-

-MARRH synthetic - EpiNE8 (13-21)

414000H 50

Arg Pro Asp Fhe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 5 10 15

The Phe Lys Arg Leu Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr

Pre Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50

+310 + 51 +311 + 58 +313 + PFT -313 + Artificial

 $\{(1,1,2,1)\}_{i=1}^n$

while synthetic = EpiNE1 (13-21)

H4002 51

Ard Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala

Fire Phe Firo Arg Tyr Phe Tyr Asi. Ala Lys Ala Gly Leu Cys Glin Thr

Fine Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala ± 5 40 45

Alu Asp Cys Met Arg Thr Cys Gly Gly Ala

00.10 + 5. 00.11 + 5. 00.11 + PRT

H213 · Artificial

<2229 →

<223 - synthetic - EpiNE5 (13-21)</pre>

-:4:10 - 5.

Ard Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala

Pho Phe Glin Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Glin Thr 20 25 30

Pho Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Ash Pho Lys Ser Ala

Glu Asp Cys Met Ang Thr Cys Gly Gly Ala

H210 + 5 + H211 + E + H211 + PAT H214 + Artificial

sin : synthetic - EpiNE... (13-11)

11111

Ard Pro Amp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala

he. The Bys Arg Tyr Phe Tyr Ast. Ala Lys Ala Gly Leu Cys Gln Thr

Phe Val Tyr Gly Gly Cys Het Gly Ash Gly Ash Ash Phe Lys Ser Ala

Glu Asp Cys Met Ang Thr Cys Gly Gly Ala

1.11(. 54

HIII. PRT

and Artificial

-1.11 Ci-

FILSE synthetic - EpiC 1 and EpiC 11 (15-19)

-14:01:54

Arg Fro Adp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Gly 1 5 10 15

Phe Ser Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

+02100+ 55 +0.110+ 58 +0210+ PST +0.110+ Artificial

<!200.*
<!200.* synthetic = EpiC7 (15-19)</pre>

-14000- 55

Ard Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala

Let Phe Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Let Cys Gln Thr 20 - 25

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala $\frac{1}{12}$

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

+12100 50 +12110 58 +1210 FRT +131 Artificial

%326 %323 - synthetic - Epi C8 (15-19)

4400 - 56

Arg Pro Asp Phe Cys Leu Glu Pro Pro Asn Thr Gly Pro Cys Phe Ala 1 10 15

The Thr Pro Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr 20

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

1011 - 50

:111 - 5a

COLO PET

4213 Artificial

Ladner7L.ST25.txt ±(220 × :::::3 · synthetic - EpiCl0 (15-19) -(40) - 57 Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala i 5 10 1510 Leu Phe Bln Arg Tyr Phe Tyr Asn Ala Lys Ala Bly Leu Cys Gln Thr Prob Val Tyr Bly Bly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala ± 5 40 45 Glu Asp Cys Met Arg Thr Cys Gly Gly Ala $^{\circ}0$ +101.0 + 58 +1011+ 58 · Dlan PRT - 213 - Artificial +223 - synthetic - EpiC20 (15-19) · 400. - 5: Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala The Ser Fro Arg Tyr Phe Tyr Ash Ala Lys Ala Gly Leu Cys Gln Thr Fine Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala 40 Gara Asp Cys Met Arg Thr Cys Gly Gly Ala -...1:1: 59 +0111: 56 -0110: PFT ## Law Artificial 2020 synthetic, EPiNE7.6 Arg Pro Asp Fhe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 $$ 5 $$ 10 $$ 15

Page 28

Met Phe Fro Årg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr $20 \\ 25 \\ 30$

Phe Leu Tyr Gly Gly Cys Lys Gly Lys Gly Asn Asn Phe Lys Ser Ala

 Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

(210: 60 (211: 58

HU113 PRT HU113 Artificial

+123> synthetic, EPiNE7.8, 7.9, 7.31

-400> 60

Arg Prc Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala $_{5}$ $_{10}$ $_{10}$ $_{10}$

Mot Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Pho Glu Tyr Gly Gly Cys Trp Ala Lys Gly Asn Asn Pho Lys Ser Ala 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50

+210/ 61 +211+ 58 +317+ PET

-0132 Artificial

-1220.-

+223 synthetic, EPiNE7.11

-4400 - 61

Arg Pro Asp Phe Cys Leu Glu Pro Pro Fyr Thr Gly Pro Cys Val Ala 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asa Ala Lys Ala Gly Leu Cys Gln Thr 20 30

Pne Gly Tyr Ala Gly Cys Arg Ala Lys Gly Asn Asn Phe Lys Ser Ala 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

1210 × 62 4211 × 58

- -0212> PFT
- -02130 Artificial
- -12201-
- HIRESE synthetic, EPINE7.7
- -:40G/- 621
- Ard Fro Asp. Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
- Not Fhe Fro Arg Tyr Fhe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr 20
- The Glu Tyr Gly Gly Cys His Ala Glu Gly Asn Asn Phe Lys Ser Ala 35 -40 -45
- Cln Asp Cys Met Arg Thr Cys Gly Gly Ala 80 55
- -210× 63
- ·211/ 55
- -312- PRT
- 213 Artificial
- 2222
- *INF* synthetic, EPiNE7.4, 7.14
- -400 6:
- Arg Pro Asp Pae Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 5 10 15
- Mot Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
- Phe Leu Tyr Bly Gly Cys Trp Ala Bln Gly Asn Asn Phe Lys Ser Ala 40
- The Asp dys Met Arg Thr Cys Gly Gly Ala 50

- 0210 64 0211 55 0213 PHT 0213 Artificial
- 4.2.20
- William synthetic, EPiNE7.5
- -:400 64
- Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 5 15

```
Ladner7L.ST25.txt
Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
Phe Arg Tyr Gly Gly Cys Leu Ala Glu Giy Asn Asn Phe Lys Ser Ala 35 40 45
Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55
-1.10. 65
H211 - 58
<0.12 + PRT
HD13 · Artificial
-0330
<dd3> synthetic, EPiNE7.10, 7.20
4400. 65
Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 5 10 15
Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
Phe Asp Tyr Gly Gly Cys His Ala Asp Gly Asn Asn Phe Lys Ser Ala
                              40
New Asp Cys Het Ang Thr Cys Gly Gly A…a 10 55
+ 310.+ 66
+ 311+ 58
+ 312 + PFT
1130 Artificial
+ 2200
*CLGGT synthetic, EPiNE7.1
- 4000 66
Arg Pro Asp The Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 10 15
Met. Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
             20
```

The Lys Tyr Gly Gly Cys Leu Ala His Gly Asn Asn Phe Lys Ser Ala 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

Ladner7L.ST25.txt <.210 ⋅ 67 1211 ⋅ 58 +12.12 + PRT HU13 · Artificial ·1.13) · Synthetic, EPiNE7.16 <1111 6/ Any Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr Pho Thr Tyr Gly Gly Cys Trp Ala Asn Gly Asn Asn Phe Lys Ser Ala 35 40 45 Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55 HOLDER 68 HOLLER 58 WOLLER PRT HOLDER Artificial THIS synthetic, EPINE7.19 8 4H 11 6 3 Ang Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr Five Asn Tyr Gly Gly Cys Glu Gly Lys Gly Asn Asn Phe Lys Ser Ala 35 40 45 Glu Asp Cys Met Arg Thr Cys Gly Gly Ala + 2100 69 + 2110 53 edita PPT edita Artificial +[__10]+ FIRE synthetic, EPiNE7.12 <4000 € 69

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Vâl Ala 1 5 16 15 Page 32

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Phe Gin Tyr Gly Gly Cys Glu Gly Tyr Gly Asn Asn Phe Lys Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50

-:210:- 70

-:211 - 58

·212 · PRT

·013 / Artificial

---20--

-1.13 - synthetic, EPiNE7.17

·*400 - 70

Mot Phe Pro Ard Tyr Phe Fyr Ash Ala Lys Ala Gly Leu Cys Gln Thr

Pho Glr. Tyr Gly Gly Cys Leu Gly Glu Gly Asn Asn Pho Lys Ser Ala ± 5 ± 40 ± 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

+1210 x 71 +1711 + 58 +1712 x PET +1713 + Artificial

And Pro Asp Pho Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Met Phe Pro Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr 20 25 35

Phe His Tyr Gly Gly Cys Trp Gly Gln Gly Asn Asn Phe Lys Ser Ala 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

```
+210> 72
+:711: 58
· Land PRT
1.11 Artificial
1111
HEALTH synthetic, EPINE7.22
-:40 to 7.2
Ang Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
Met Phe Pro Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr
Pho His Tyr Gly Gly Cys Trp Gly Glu Gly Asn Asn Phe Lys Ser Ala
Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55
215 - 73
FILL PRT
FILL Artificial
%20%
%123% synthetic, EPiNE7.23
+400 73
And Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
Mot The Pro Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr
Pite Lys Tyr Bly Gly Cys Frp Bly Lys Gly Asn Asn Phe Lys Ser Ala
Gul Asp Mys Met Arg Thr Cys Gly Gly Ala
431) + 74
4311 + 55
4312 + PRT
4313 + Artificial
-:22) -
<223 · synthetic, EPiNE7.24</pre>
```

-:400-74

Ladner7L.ST25.txt Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 10 15 Mot Phe Pro Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr Pho Lys Tyr Gly Gly Cys His Gly Ash Gly Ash Ash Phe Lys Ser Ala $\frac{35}{45}$ Ghu Asp Cys Met Ang Thr Cys Gly Gly Ala 50 55 +2100- 78 · 111 · 58 ·::123 PET <!:13: Artificial</pre> -12201-**:::30 synthetic, EPINE7.25 <44000 7E Ang Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 5 10 15 Met The Pro Arg Tyr Phe Tyr Asr Ala Lys Ala Gly Leu Cys Gln Thr 10 25 30 Price Pro Tyr Gly Gry Cys Trp Ala Lys Gly Ash Ash Price Bys Leu Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala ± 0 FIL100- 76 HU110 55 HM120 PRT HM130 Artificial +2230 synthetic, EPINE7.16 414000 76 Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 $^{\circ}$ 10 $^{\circ}$ 15 Met Phe Fro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gl
n Thr $-20\,$ Phe Lys Tyr Gly Gly Cys Trp Gly His Gly Asn Asn Phe Lys Ser Ala $3\mathbb{E}$ 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

+1310 + 77 +1311 + 58 +1313 + PRT +1313 + Artificial

.:11.7.7

HUUB - synthetic, EPiNE7.27

4400 - 77

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala : 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Ash Ala Lys Ala Gly Leu Cys Gln Thr

Pho Ash Tyr Gly Gly Cys Trp Gly Lys Gly Ash Ash Phe Lys Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50

+1210 - 78 +211 - 58 -111 - PAT -113 - Artificial

-013 - synthetic, EPiNE7.28

-400. 73

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Mot Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr 30 25 36

The Thr Tyr Gly Gly Cys Leu Gly His Gly Asn Asn Phe Lys Ser Ala $\frac{11}{12}$ 40 45

 $\mathrm{G}:\mathrm{u}$ Asp Cys Met Arg Thr Cys Gly Gly Ala 50 -

+0.200+ 79 +0.110+ 58 +0.100+ PRT

Artificial

.....

<2232 synthetic, EPiNE7.29

-:400> 79

Arq Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Met. Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

The Thr Tyr Gly Gly Cys Leu Gly Tyr Gly Asn Asn Phe Lys Ser Ala 40

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50

+0100 80 +0110 58 +0110 PRT +0113 Artificial

*MTM30 synthetic, EPiNE7.30, 7.34, 7.35

-1400E-80

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Mot Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Phe Lys Tyr Bly Gly Cys Trp Ala Glu Gly Asn Asn Phe Lys Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

:210 + 81 ::211 + 58

· Clia · PRT

4013 · Artificial

·[][]() ·

H203 · synthetic, EPiNE7.32

-14:10 - 81

Arg Pro Asp Pne Cys Leu Glu Pro Pro Tyr Thr Gl; Pro Cys Val Ala 1 10 15

Met Phe Fro Arg Tyr Phe Tyr Asn Ala Lys Ala 317 Leu Cys Gl
n Thr20 25 30

Phe Gly Tyr Gly Gly Cys Trp Gly Glu Gly Asn Asn Phe Lys Ser Ala 35 40 45 Page 37

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

- · 210. · 8.:
- 11. 5 p
- ...15 Artificial
- +220 + +225 + synthetic, EPiNE7.33
- -400 82

Arg Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Met The Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

the Glu Tyr Gly Gly Cys Trp Ala Asn Gly Asn Asn Phe Lys Ser Ala 40

Git Asp Cys Met Arg Thr Cys Gly Gly Ala

- 210 83 11 58 12 PRT
- 13 Artif.clal

- 4:00 83

Arg Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Met the Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr 30

the Val Tyr Gly Gly Cys His Gly Asp Gly Asn Asn Phe Lys Ser Ala $\frac{15}{15}$ 40 45

Mu Asp Cys Met Arg Thr Cys Gly Gly Ala

- + 111 + 84 + 111 + 88 + 112 + PRT
- 313 · Artificial
- .22C.+

- <:223> synthetic, EPiNE7.37
- <40.00 84

Ard Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Met. Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gin Thr 210

The Met Tyr Gly Gly Cys Gln Gly Lys Gly Asn Asn Phe Lys Ser Ala 35

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 55

- /.:100 85 -.:11 58
- -.:12: PR.T
- +:13 · Artificial
- <...)(: *
- -003 synthetic, EPiNE7.38
- -1400 · 85

Ary Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Met Phe Fro Arg Tyr Phe Tyr Asn Alâ Lys Ala Gly Leu Cys Gln Thr 36

Phe Tyr Tyr Gly Gly Cys Prp Ala Lys Gly Asn Asn Phe Lys Ser Ala 35

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

- +1210 + 80 +1211 + 58 +1212 + PET
- dals. Artificial
- -1.121) -
- <:22+ synthetic, EPINE7.39</pre>
- -(400 86

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

```
Ladner7L.ST25.txt
```

Pho Met Tyr Gly Gly Cys Trp Gly Asp Gly Asn Asn Phe Lys Ser Ala 40

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

-0210 - 97

HULLY 5% HULLY 5% HULLY PRT HULLY Artificial

412.0mm

HUUS - synthetic, EPiNE7.40

+1400 + 87

Met. Phe Pro Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr

Pre Thr Tyr Gly Gly Cys His Gly Asn Gly Asn Asn Phe Lys Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

-12 10 - 10 m -13 11 - 6 -13 12 - PH.T

KULB - Artificial

1 -

<223 synthetic, sequence for Table 131</pre>

- J. L. & . E. -

Maa Maa Maa Maa Maa Maa Maa I

...133 6 4 -1111 24

· I I I DIIA

FILE Artificial

Fig. 5. Synthetic, DNA for Class I microprotein library

-12200-

```
+2.1: misc feature
+13.22: (1)...(2)
-223 n is a, c, g, or t
- 2105
+All misc_feature
+ .:. 14 (7) . T(3)
Fillis n is a, c, g, or t
**Clob*

**Clib* misc_feature

**Clib* (10)..(11)

**Clib* n is a, c, g, cr t
#210#
#211# misc_feature
#212# (13)..(14)
#223# n is a, c, g, cr t
-15 50) ·
misc_feature
%1.00% (16)..(17)
%0.00% n is a, c, g, or t
+0000.
+0001. misc_feature
+0000. (22)..(23)
+0000. n is a, c, g, or t
-1400 - 89
                                                                                                      24
untigtheth ngnnghhttg thit
4210 90
HL11+ 13
HH11+ ENA
HH13+ Artificial
0210 /
0213 - synthetic, ds DNA target, upper strand
-14 00
         90
                                                                                                      13
deategaate oge
-0.10 - 91
-0.11 - 15
-0.10 - DNA
Mall: Artificial
41000 A
 10.03
          synthetic, ds EMA target, lower strand
91400 x 915
                                                                                                      13
dograttiqa ogg
7216 - 93
7311 - 16
7312 - DNA
Halby Artificial
<223> synthetic, ss DNA target, no hairpin
                                                      Page 41
```

+400 × cata⊒co	92 stog toatta	16
+.710 + +.211 + +.212 + +.717 +	1:	
-220 · -223 ·	synthetic, ss DNA target with hairpin	
-400- obgrago	93 gtac ctacgg	16
+ 210 + + 211 + + 212 + + 212 + + + 212 + + + +	15	
.000 .000 .000	synthetic, ds DNA target, upper strand	
- 400 - cacqipo	94 tatt acggt	15
.010. .211. .230. 13.	1. IMA Artificial	
+ 1.1.3 + + 1.1.3	synthetic, ds DNA target, lower strand	
- 410 - accata	ns atagido	12
- 210 - - 211 - - 212 - - 213 -		
: <u>1.2</u> 5; : : <u>1.2</u> 5; :	-ynthetic, fragment of M13 gene VIII protein	
	TDS *) (20)	
ig ²⁶ 30 air™30	Met Lys Lys Ser 1	20
+ (*16 + + (*11 + + (*11 + + (*11 +	4	

```
+12200
+2223.+ synthetic, fragment of M13 gene VIII protein
+14000 - 97
Met Lys Lys Ser
-02100 98
RD102 98
RD112 20
RD103 PNA
RD133 Artificial
+11.33 synthetic, mutated N-terminal of M13 gene VIII
. : _ _ _ _ _ .
72217 CDS
√2223 (%)..(20)
<14 (Digital - 1914)
                                                                                         20
acticcag ctg aaa aag tot
           Leu Lys Lys Ser
0010 99
0011 - 4
0010 PBT
0013 Attificial
- 229
422: Asynthetic, mutated N-terminal of M13 gene VIII
21400 × 99
Let Lys Lys Ser
chio = 100
chil = 16
chil = 10A
chil = Artificial
Fig. 1) - synthetic, DNA for ID 10, upper strand
+400 - 100
                                                                                         16
ojangganja ggatoc
+210+ 101
+211+ 16
+210+ DNA
+210+ Artificial
 :323 - synthetic, DNA for ID 10, lower strand, see also ID 16
<400. 101
```

	Ladner7L.ST25.txt	
oggato	ectod tecete	16
-:210 - -:211 -		
1.11.1		
<(2:) →		
- (400)	synthetic, DNA for ID 17	
	gagg gaggaggato ogcogotgaa ggt	33
-1110 x		
+211 + +212 ×	DHA	
Sili 0 v	Artificial	
	synthetic, DNA for AAG 6-10 of ID 11	
-1400 - афраја	-103 toat aatabataga a	21
- 123 C -		
	roja	
	Artificial	
+12.29 + +12.24 +	synthetic, INA for ID 10, M13.3X7	
- 400 -	le: gado aggatococo	20
		2.0
· 210. · 211.	52	
70.12.7 70.131	THA Artificial	
- 1111-11 - 1111-11	synthetic, ENA fir IE 18, M13.3X11	
14(10)-		
वसन्दर्भ	ggag gaggatongg atootootoo otoggatoot ootoootogo oo	52
	DMA Artificial	
- 2200-		
H2131-	synthetic, ENA for library based on Pease et al. "Hybrid I" and "Hybrid II" (5-1))	d
	106 rrsv hgvhgrmg	18

```
< 210 · 107</pre>
+ 311 + 13
+ 213 + DNA
· 213 · Artificial
- 7 7mm -
+22 - synthetic, DNA for library based on postions 4-7 CMTI-I
* 11/10 *
+JS1 + misc_feature
(5)...(5)
+333 + n is a, c, g, or t
× 220 ×
+221 * misc_feature
+222 * (7)..(8)
+223 * n is a, c, g, or t
.400 - 107
                                                                                       12
withinthing wg
+010+ 168
+011+ 27
+011+ LMA
+011+ Artificial
*: Synthetic, EpiNE alpha (13-21) DNA
400 - 108
                                                                                       27
matigegtig ctatgttcca acgetat
+ 117 + 109
+ 111 + 27
+ 112 + EMA
+ 111 + Artificial
1116 ×
-1132 synthetic, EpiNE3 (13-21) DNA
×400 × 109
                                                                                       27
 hottgogtog gtttottoto acgotat
-_. eynthetic, EpiNE6 (13-21) DNA
 400 - 110
                                                                                       27
 + 200 + 111
+ 511 + 57
+ 51 + 5NA
+ 212 + Artificial
```

. 225 -	22	
	synthetic, EpiNE7 (13-21) DNA	
+ 4 fm +		27
denting 20	gtig ctatgttocc acgetat	
· .:1: ·	110	
11111 1111		
	Artificial	
+ 114 ×		
	synthetic, EpiNE4 (13-21) DNA	
ik 400 k Hobbitae	11/ gtog otatottood abgotat	.27
010 0011 0012 %	213	
	EDA	
13 -	Artificial	
+ 220 s	synthetic, EpiNE3 (13-21) DNA	
- 400 ·		
	guag ctatetteaa aegetet	2.7
11. 11.	114 . :	
	M. C. I I C. I d. I	
- 1111 + 1 211	synthetic, EpiNE1 (13-21) DNA	
4 (x()) ×	1.1.4	
patitigo	atog etttettece aegetat	27
.516.	· · · · · · · · · · · · · · · · · · ·	
1210 · - 211 ·	27	
: 212 : : 21 : :	- DDA - Attificial	
- 1 <u>11</u> 0 -		
	synthetic, EpiNE5 (13-21) DNA	
$x = \frac{1}{2} \left(\frac{1}{2} \left(\frac{1}{2} \left(\frac{1}{2} \right) \right) \right) = 0$		27
f. ic	canny officetora acgorat	- /
	:16	
	Artificial	
	Eynthetic, EpiC2 (13-21) DNA	
4436.4	116	

cuttgda	atcy officaa acgotat	Ladner7L.ST25.txt	27
+ 010 + + 011 + + 011 + + 011 + + 011 + + + 011 + + + 011 + + + 011 + + + 011 + + + +	1 🕏		
	synthetic, EpiC 1 and 11	(15-19) DNA	
-400 - atgggtt	117 ct:t ccaaa		15
<pre>% 10 + % 13 1 + % 12 1</pre>	15		
120 120 120	synthetic, EpiC 7 (15-19)	DNA	
n400 k abggirti	118 tt _i t tcaaa		15
*.11 *	15		
	synthetic, EpiC8 (15-19)	DNA	
edal. Stoyet	119 atua cocca		15
<pre>%010+ %011+ %012+ %013+</pre>	15		
1220 H	synthetic, EpiCl0 (15-19)) ENA	
.¦oa. ≅'}jj∷t	1:0 ttjt todaa		15
	1.1 15 MMA Artificial		
901009 901009	synthetic, EpiC20 (15-19) DNA	
k ⊈000 k et dast	121 at it cocca		15

-211 · 122

	? FT rtificial	
·12(1) 	ynthetic, amino acid sec	q 1
-(400:- 1	22	
Meta Lys 1	Lys Ser Leu Val Leu Lys 5	Ala Ser Val Ala Val Ala Thr Leu 10 15
Val Pro	Met Leu Ser Phe Ala Ala 20	Glu Gly Asp Asp Pro Ala Lys Ala 25 30
	Asn Ser Leu Gln Ala Ser 35 40	Ala Thr Glu Tyr Ile Gly Tyr Ala 45
Trp Ala 50	Met Val Val Val Ile Val 55	Gly Ala Thr Ile Gly Ile Lys Leu 60
Pre Lys	Lys Pne Thr Ser Lys Ala 70	Ser
11 · 6		
4. tu 4.23 - s	eyn.thetic, oligo #12	
(n.sc_feature (21)(22) n.cs a, c, g, cr t	
.:222 .:221 - m .:222 - (n.sc_feature (34)(35) alssa, c, g, or t	
m (also_feature (27)(28) n_s_a, c, g, or t	
ologia ggagogo	023 dat gogtadotgo nnknnknnk	g olgaaggtga tgatooggoo aaagoggoog 60
0.100		64
:::1) - 1 :::11 - 7 :::1x - E	7)	

```
< 200 ×
+123 - synthetic, oligo #12a
· 🚉 🧎 🖽
· [:] · misc_feature
+11. (21)^{-}. (22)
+113+ n is a, c, g, or t
+ 320 +
+ 331 + misc_feature
+ 321 + (24) .. (25)
+ 333 + n is a, s, g, or t
.220 - .221 - misc_feature
+222 + (27)^{\top}. (28)
+225 + n is a, c, g, or t
-113- n is a, c, g, or t
 400 - 104
ququqegeat gegtacetge nnknnknnkn nknnkgetga aggtgatgat eeggeeaaag
                                                                               60
                                                                                70
aganagogno
11.4 105
+1114 76
+1104 DMA
+3134 Artificial
×220 ×
+223+ synthetic, oligo #12b
+1.0+
+211+ misc_feature
(21.7.(-2))
Puller nois a, c, g, or t
(24)...(25)
1734 n.is a, c, g, or t
.:::"
.:::: mist_feature
.::: (30)...31)
· ___ n is a, c, g, or t
```

```
+ 000 + + 000 + + 000 + misc_feature + 000 + (03)..(34)
+223 - n is a, c, g, or t
· ...(1)
·::: misc feature
+ 2.1.7 \cdot (36) \overline{.} \cdot (37)
· LL: n is a, c, g, or t
+100+
+211+ mass_feature
+211+ (29)..(40)
+113+ n is a, b, g, or t
- 460J 125
pogagogoat gogtacotgo nnknnknnkn nknnknnknn kgotgaaggt gatgatoogg
                                                                                             60
                                                                                              76
scalagegge egegee
 219 - 106
- 211 - 21
- 213 - DNA
· 213 · Artificial
< 1.20 ×
+111+ synthetic, oligo #13
+400 / 116
                                                                                               23
qq:degge:g ctttggeegg atc
 210 + 127
211 + 54
-213 + DMA
-213 + Artificial
+.10 +
+.223 - synthetic, oligo #14
 % 100 +
% 201 + misc_feature
% 100 + (20) .. (30)
% 103% n is a, c, g, or t
egger n is a, c, g, or t
 -465 - 117
 ;;:::eggta ccgatgctgt cttttgctnn knnknnkttc tgtctcgagc gcccgcga
                                                                                               58
 - 113 + 113
- 111 + 64
- 111 + ENA
```

```
· .:13 · Artificial
+223 · synthetic, oligo #14a
· 229 ·
+...l> misc_feature
+1.1. (29) \overline{.} (35)
-123 · n is a, c, g, cr t
+320 +
+331 + misd_feature
+222 + (32)..(33)
+323 + n is a, b, g, or t
+331 - misc feature
+331 - (38)...(39)
+333 - n is a, c, g, or t
+220 +
+221 + m.sc_feature
+202 + (41)..(42)
+ 23 + n is a, t, q, or t
 4:00 - 1.18
 ggooggga cogatgotgt cttttgctnn knnknnknnk nnkttctgtc tcgagegecc
                                                                                                           64
107.00%
210 - 129
-211 - 70
-212 - DNA
-..13 - Artificial
3.020 s
+323 * synthetit, clipo #14b
 :111: misc_feature
:111: (201..(30)
:223: n is a, c, g, or t
 %Locality misc_feature
  (3.1)^{-} \cdot (3.1)^{-} \cdot (3.3)
  _13 + n is a, c, g, or t
 +:110+
+:211+ misc_feature
+:12+ (31)..(36)
+:12+ n is a, c, g, or t
 .::::
.:::: misc_feature
.:::: (38)..(39)
```

```
\cdot 13 \cdot n is a, c, g, or t
+ 220 ·
+331 + misc_feature
+113 + (41)..(43)
+333 + n is a, c, q, or t
......
....misc_feature
+332 + (44)...(45)
+333 + n is a, o, q, or t
1226.
-121 · misc feature
-212 · (47)..(43)
-213 · n is a, c, j, or t
3400 · 129
amangaggta ocgatgotgt ottttgotnn knnknnknnk nnknnknnkt totgtotoga
                                                                                        60
                                                                                         70
Haranegoga
+210 - 130
11: 47
-:::2: ENA
 113 · Artificial
+210.
+210.
-prise synthetic, original putative RBS
+400 - 130
                                                                                         47
dagincagag gottactatg aagaaatoto tggttottaa ggotago
+010+ 181
+011+ 49
+010+ DNA
+013+ Artificial
+::00 +
+::003 + synthetic, new RBS
+400+ 131
                                                                                         49
 vagntotgya ggaaataaaa tgaagaaato totggttott aaggotago
+116 + 132
+11 + 41
+211 + DMA
+114 + Artificial
 -4:11 - 132
                                                                                          41
 ystictory agrogattt acacttrate etteogete e
133
111 3
111A
.... Artificial
```

```
· 220 ·
+333 - synthetic, MB16, lower strand
+400 + 133
                                                                                 37
ogagnoggaa goataaagtg taaagoogao totagag
- 210 - 134
+211+ 36
+212+ ENA
+213 + Artificial
3.21
.___ synthetic, MB22 insert, upper strand
×400× 134
                                                                                 36
datesacted coatecoot gitgacaatt aateat
+310 + 133
+311 + 34
+312 + EMA
+313 + Artificial
- [[]0>
.223 - synthetic, MB22 insert, lower stand
+4.0 - 135
                                                                                 34
equatiattaa ttgtcaacag ggggatgggg agtg
+210 + 136
+311 + 88
+313 + 1MA
- 213 · Artificial
*_____ synthetic, DNA/amino acid for phoA signal peptide
: 010
: 011 :
: 012 :
        71.S
        123)..(88)
× 400 × 136
                                                                                  52
gaintecatg ggagaaaata aa atg aaa caa agc acg atc gca ctc tta ccg
                             Met Lys Gln Ser Thr Ile Ala Leu Leu Pro
                                                                                  88
 than the tit according to aca assigned eat edg gat
 Log Leu The Thr Pro Val Thr Lys Ala Arg Pro Asp
                   15
                                          20
 ...10 · 137
...11 · 13
...11 · FFT
 -_:: Artificial
 .jus.
.ils. bynthetic, DNA/amino acid for phoA signal peptide
  405 · 15/
```

```
Ladner7L.ST25.txt
Met Lys Gln Ser Thr Ile Ala Leu Leu Pro Leu Leu Phe Thr Pro Val
                                     10
Thr Lys Ala Arg Pro Asp
         2.0
·.10 · 133
-211 - 210
-212 - DNA
+313 · Artificial
- 3293
- 333 -
       amp gene promoter and signal sequence; signal peptide
-2700-
-dulty CDS
 (136)..(210)
94559 P. 138
quatroggig gradititog gggaaatgig ogoggaaddd etattigitt attitictaa
                                                                        60
atarattosa anatgtatod gotoatgaga baataacoot gataaatgot toaataatat
                                                                        120
timasaagga agagt atg agt att caa cat tto ogt gto goo ott att occ
                                                                        171
                  Met Ser Ile 3ln His Phe Arg Val Ala Leu Ile Pro
                  1
                                                                        210
the fitt gog goa tit tigo off cot git tit got cat dog
its The Ala Ala Phe Cys Leu Pro Val Phe Ala His Pro
                             20
        1 C
139
-111 25
-111 PPT
Artificial
-1000 amp gene promoter and signal sequence; signal peptide
- 400 × 1299
Met Ser lle Glm His Phe Arg Val Ala Leu Ile Pro Phe Phe Ala Ala
                                                           15
                                      10
Fra Tys Leu Pro Val Phe Ala His Pro
             20
 .:1 - 140
 lii 25
lii EMA
+::1: Artificial
-il:- synthetic, mutagenic cligo-nt
-4... 140
                                                                          25
 gtttcagcgg cgccagaata gaaag
```

```
+010 · 141
._11. . 15
· Dita · DNA
· 21 · · Artificial
. Add - synthetic, adaptor for second Narl site, upper strand
+40000\times-141
                                                                                     15
tattetggeg coogt
· 110 - 142
+211+ 13
+217+ DNA
+213 · Artificial
- 12c - 27% - synthetic, adaptor for second NarI site, lower strand
+401+ 142
                                                                                      19
organoggas godagaata
+110+ 143
+211 + 402
+211 + DNA
..!3 · Artificial
+.120 +
+.223 * synthetic, DNA for Table 3, encodes ID122
0.000
+:111   misc_feature
+:111   (10)   .(12)
-::: "nnn" is "ten" or "agy", n is a, c, g or t
*d.0*
*d21* misc_feature
*D21* (13)..(15)
*D21* "nnn" is "ttr" or "ctn", n is a, c, g or t
+210.*
+121.* misc_feature
+12.* (18)..(21)
+11.* n is a, c, g, or t
......

...: misc_feature

...: (27)..(27)

...: r. is a, c, g, or t
· ___ n is a, c, g, cr t
```

```
< 110 ×
+331 / misc_featur
+233 + (36) .. (36)
         misc feature
· Pr. n is a, c, g, or t
. . .
.N11   miss_feature
+.... (39)\overline{..} (39)
· LL3 · n is a, c, g, or t
+113 + mist_feature
+113 + (42) \dots (42)
+114 + n is a, c, g, or t
+110+

001+ misc_feature

+001+ (45)..(45)
+333 - n is a, c, q, or t
%. 0.*
%...l * misc_feature
%...l * (46)..(48)
%...l * "nnn" is "ttr" or "ctn", n is a, c, g or t
- 0000 +
- 0010 - misc_feature
+2... + (54)... (54)
entre n is a, c, g, or t
%:10 **
%:11 * misc_feature
*:111 * (58)..(60)
*:111 * "nnn" is "ttr" or "ctn", n is a, c, g or t
+...00 +
+...11 +
+...121 +
+...123 +
         misc_feature
          (61)...(63)
          "nrn" is "ton" or "agy", n is a, c, g or t
+.mail+
+.lil+ misc_feature
(70)...(72)
(30)...(72)
(30)...(72)
misc_feature
 +121 + (75) ...(75)
+113 + n is a, c, g, or t
 5 <u>2 2 2 5</u>
 .... misc_feature
.... (85)..(87)
.... "nnn" is "ttr" or "ctn", n is a, c, g or t
                                                   Page 56
```

```
- 3355×
.::: misc_feature
.::: (93).. (93)
· 123 · n is a, c, g, or t
- 1.71 · misc feature
+22.0 + (96)^{-1} \cdot (96)
·Mar n is a, c, g, or t
- 310 o -
101 · misc_feature
+200 · (102)..(102)
+200 · n is a, c, g, or t
+ Diffs
+ Diff + mist_feature
+332 \times (105)..(105)
-233 n is a, s, g, or t
- 120 ×
-111 · misc_feature
+2.32 + (11/)...(117)
File n is a, c, y, or t
- 22cm
+:110 + 
+:2210 | misc_feature 
+:110 + (129)..(129) 
+:130 | n is a, c, g, or t
...ld.
...ld. miso_feature
...ld. (144)...(144)
...ld. n is a, c, g, or t
 .il::
.il: mist_feature
.il: (150)..(150)
.il: n is a, c, g, or t
 +...::
+...:! + miss_feature
 0.012 + (183)...(15)

0.004 + n is a, c, g, or t
 -121 · misc_feature

-121 · (154)..(156)

-213 · "nr.n" is "ttr" or "ctn", n is a, c, g or t
 1. . . . . . .
```

```
· al? · n is a, c, g, or t
+ 125 ×
+331 · mist_feature
\dots \qquad (171) \dots (171)
.... n is a, c, q, or t
-110-
- L... mist feature
(177)...(177)
+ MB* n is a, c, g, cr t
+1000 ×
walls n is a, c, q, or t
22003
-22003 mist_feature
2003 (184)..(186)
"370" is "cp
       "nnm" is "cyn" or "agr", n is a, c, g cr t
× 2 × 4.
- 7.11 -
- 7.12 -
- 7.23
       mis:_feature
       (197)...(195)
"nr.n" is "eyn" or "agr", n is a, c, g or t
-:200+
-:201+ misc_feature
-:201+ (813)..(213:
-:25+ n is a, d, g, or t
% 11A **
% 121 ** miss_feature
% 121 ** (231) **
% 21 ** n is a, s, g, or t
 176 -
 ...
ULL: must_feature
 (217)..(237)
(217)..(237)
%:100.
%:110. mlso_feature
%:170. (2:0)..(240)
%:110. n is a, c, g, or t
... .
.::I: mist_feature
```

```
+2238 - (243)...(243) + 2238 - n is a, d, g, or t
100 C
+121 + misc_feature
+333. + (246)...(246)
Hadan n as a, e, q, or t
1 July 12 1
+ 3.21 + miso_feature
+ 2.31 + (25.3) . (252)
+ 2.23 + n is a, c, g, or t
- 2000 x
+221 * misc_feature
+221 * (261)..(261)
+123 / n is a, c, g, or t
-2200
-201 - miss_fcature
-201 - (264)..(264)
-203 - n is a, s, s, or t
-: 120 --
-: 121 -- mist_feature
-: 222 -- (270)...(270)
-: 227 -- n is a, c, q, or t
+121 + (181)...(182,
+121 + (181)...(182,
+118 - "nnn" is "ten" or "agy", n is a, c, g or t
-2232 "nnn" is "ttr" or "ctn", n is a, c, g or t
+ 100 k
close musc_feature
close (091)..(291)
· __ : · n is a, c, g, or t
  lise "mmn" is "ton" or "agy", n is a, c, g or t
-.100 *
-121 - miss_feature
-.122 - (297)..(297)
-.113 - n is a, c, g, or t
% 12 ***
**121 ** miss_feature
**121 ** (300)...(300)
 · ... · n is a, c, g, or t
```

. ____ .

```
+331 * misd_feature
+322 * (312)..(312)
+333 * n is a, c, g, or t
* (A)
+ 201 + mist_feature
+ 200 + (31*)..(51*)
· Mise n is a, c, q, or t
+ D20 +
+ D21 + mist_feature
+ D22 + (324) . (324)
+ D23 + n is a, c, g, or t
-2232 n is a, c, g, or t
+320 + +321 + misc_feature +322 + (336) ...(336) +325 + n is a, 1, 3, or t
* . .20 ×
.... misc_feature .... (345)..(346)
+213 + n is a, c, g, or t
+2000
+321 + miso_feature
+322 + (348)..(148)
+327 + n is a, c, g, or t
+ 210 +
+ 211 + misc_feature
 +2.2. (351)..(351)
 +129 / n is a, :, g, :r t
1 .
 -_.i     misc feature
 +11.1 (357) \cdot (357)
+213 \cdot n is a, s, g, cr t
 +.lin -
+.hin - mist_feature
+.hin - (364)..(366)
+.lin - "nnn" is "ttr" or "ctn", n is a, c, g or t
 .::30.
.::1: misc_feature
.:: (361)..(351)
 · LLB · n is a, c, g, or t
```

```
- 220b
....1
                    misc feature
. ........
                    (382)..(384)
+ 2.233×
                     "nnn" is "ten" or "agy", n is a, c, g or t
· 11.710 ·
1.
                    mis: feature
                  (390)..(390)
·223 · n is a, c, g, or t
misc_feature (391)..(393)
villa. "nnn" is "ton" or "agy", n is a, c, g or t
×220%
%...ll> misc_feature
%...ll> (394)..(396)
                   "nmn" is "tar" or "tga"
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                      "nrin" is "tar" or "tga"

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                                                                                                                                                                                                           120
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 uthathogni ayttytäyää ygonaargon ggnnnntgyo araonttygt ntayggnggn
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                                                                                                                                                                                                           240
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  gengengang gngaygayee ngenaargen genttyaayn nnnnnearge nnnngenaen
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                                                                                                                                                                                                           360
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                      5:3
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     _13 - Bos taurus
  -400 · 144
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   Fine Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
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- 112 PFT
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- 400 145

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Fire Val Tyr Gly Gly Thr Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala 35 40 45

Gla Asp Dys Met Arg Thr Cys Gly Gly Ala

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- .120%
- +223+ Engineered B-PTI from MARK&7
- +400 + 146

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Ala Lys Ala

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ine Wal Tyr Gly Gly Ala Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala

The Asp Cys Met Arg Thr Cys Gly Gly Ala

- 210 147 211 67 212 ERT

- 213 Eds taurus
- 4400 147

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Glu	Thr 50	Tł.r	Glu	Met	Суѕ	Leu 55	Arg	Ilə	Cys	Glu	Pro 60	Pro	Gln	Gln	Thr
A <i>a</i> p 65	Lys	Ser													
+1210 +211 +212 +1213	Li. 20. – 1	148 60 PRT Bos	tauri	ıs											
· .: (· (); -	148													
T'rīa.	Glu	Ārg	Pro	Asp 5	Phe	Cys	Leu	Glu	Pro 10	Pro	Tyr	Thr	Gly	Pro 15	Cys
Lys	Ala	λla	Met :0	Ile	Arg	Tyr	Phe	Tyr 25	Asn	Ala	Lys	Ala	30 30	Phe	Cys
Glu	Thr	Phe 35	Ma1	Tyr	Gly	Gly	Cys 40	Arg	Ala	Lys	Ser	Asn 45	Asn	Phe	Lys
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(4)	0 •	143													
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Arg	Ile	lle	Arg 20	Tyr	Phe	Tyr	Asn	Ala 25	Lys	Ala	Gly	Leu	Cys 30	Gln	Thr
Phe	7al	Tyr 35	Sly	Gly	Cys	Arg	Ala 40	Lys	Arg	Asn	Asn	Phe 45	Lys	Ser	Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

- +.210 + 150
- . . 11 58
- $\text{c..12} \leftarrow \text{PET}$
- +313 Artificial
- 120 t
- -123 · Semisynthetic BPTI, TSCH87
- -400 · 150

And Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Gly Ala

Arg ile lle Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr

Fine Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala 40

Giu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

- + 210 + 151 + 11 + 58 + 112 + PAC
- +313 Artificial
- 229 -
- -113 · Semisynthetic BPTI, TSCH87
- +400 + 151

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ala Ala 10

Ary The The Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr .25

ine Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala 35 40 45

Ha Asp Cys Met Arg Thr Cys Gly Gly Ala

- +010 + 152 +111 + 58 +112 + PRT -013 + Artificial
- . 121 .
- -223 Semisynthetic BPTI, TSCH87

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Arg the He Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

The Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala 40

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

- +210> 153 +211> 58 +212> PET

- -113 Artificial
- · 1200.
- -223 Semisynthetic BPTI, TSCH87
- -400 153

And Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala

Ary lie lie Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

The Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala 35 -40 -45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

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- 41220
- 82233 Engineered BPTI, AUER87
- <400 154

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Sys Gln Thr 25 20

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala Page 65

Glu Asp Cys Glu Arg Thr Cys Gly Gly Ala

+:210:- 155

· 111 · 60

-3121- PRT

+ 213. Dendroaspis polylepis polylepis

-400. 155

Glu Gly Fre Thr Trp Ser Gly Cys Gly Gly Asn Ser Asn Arg Phe Lys

Thr Ile Glu Glu Cys Arg Arg Thr Cys Ile Arg Lys 55

110 · 156 ·211 · 57

- J12 - PRT

-.13 - Dendroaspis polylepis polylepis

-400 + 156

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Lys lle Pro Ser Phe Tyr Tyr Lys Trp Lys Ala Lys Gln Cys Leu Pro

File Asp Tyr Ser Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile 46 40

Glu Glu Cys Arg Arg Thr Cys Val Gly 50

+310+ 157

211 - 57

-212 - PR.T

+213 · Hemachatus hemachates

+400 - 157

Arg Fro Asp Phe Cys Glu Leu Pro Ala Glu Thr Gly Leu Cys Lys Ala

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The Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile 35 40 45
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Asp Glu Cys Arg Arg Thr Cys Val Gly 50

- +210× 158 . . . 11 . . . 57
- +112+ PRT
- · 213 / Naja mivea

7400 / 15E

Arg Fro Arg Phe Cys Glu Leu Pro Ala Glu Thr Gly Leu Cys Lys Ala . 10 $^{\circ}$

Arg The Arg Ser Phe His Tyr Asn Arg Ala Ala Gln Gln Cys Leu Glu

Fine the Tyr Gly Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr The $35\,$

Asp Glu Cys His Arg Thr Cys Val Gly 55

- +010 + 150 +011 + 60 +010 + PFT +013 + Vipera russelli

<400 · 159

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Arg Gly His Ile Arg Arg Ile Tyr Tyr Asn Leu Glu Ser Asn Lys Cys 20 25 30

Lys Val Fre Phe Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe Glu $_{\rm MF}$

Thr Arg Axp Glu Cys Arg Glu Thr Cys Gly Gly Lys 10 55 60

- -213 161
- *111 · 64 -112 · PFC
- · _13 · Caretta sp.

4400 - 140

Glx Gly Asp Lys Arg Asp Ile Cys Arg Leu Pro Pro Glu Gln Gly Pro 1 5 10 15

Cys Lys Gly Arg Leu Pro Arg Tyr Phe Tyr Asn Pro Ala Ser Arg Met 20 25 30

Cys Glu Ser Phe Ile Tyr Gly Gly Cys Lys Gly Asn Lys Asn Asn Phe 35 40 45

Lys Thr Lys Ala Glu Cys Val Arg Ala Cys Arg Pro Pro Glu Arg Pro 50 60

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<213> Helix pomatia

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Glx Gly Arg Pro Ser Phe Cys Asn Leu Pro Ala Glu Thr Gly Pro Cys $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$

Lys Ala Ser Ile Arg Gln Tyr Tyr Tyr Asn Ser Lys Ser Gly Gly Cys 20 25 30

Gln Gln Phe Ile Tyr Gly Gly Cys Arg Gly Asn Gln Asn Arg Phe Asp 35 40 45

Thr Thr Gln Gln Cys Gln Gly Val Cys Val 50 55

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Lys Phe Pro Ser Phe Tyr Tyr Asn Trp Lys Ala Lys Gln Cys Leu Pro 20 25 30

Phe Asn Tyr Ser Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile $35 \hspace{1cm} 40 \hspace{1cm} 45$

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50 55

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- ·211: 59
- <212> PRT
- ~213> Dendroaspis angusticeps
- <400> 163
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 1 10 15
- Tyr Asp Lys Ile Pro Ala Phe Tyr Tyr Asn Gln Lys Lys Lys Gln Cys 20 25 30
- Glu Arg Phe Asp Trp Ser Gly Cys Gly Gly Asn Ser Asn Arg Phe Lys 35 40 45
- Thr Ile Glu Glu Cys Arg Arg Thr Cys Ile Gly 50
- <210> 164
- <211> 57
- <212> PRT
- <213> Dendroaspis polylepis polylepis
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- Arg Pro Tyr Ala Cys Glu Leu Ile Val Ala Ala Gly Pro Cys Met Phe 1 $$ 10 $$ 15
- Phe Ile Ser Ala Phe Tyr Tyr Ser Lys Gly Ala Asn Lys Cys Tyr Pro 20 25 30
- Phe Thr Tyr Ser Gly Cys Arg Gly Asn Ala Asn Arg Phe Lys Thr Ile 35 40 45
- Glu Glu Cys Arg Arg Thr Cys Val Val
- <210> 165
- <211> 59
- <212> PRT
- <213> Dendroaspis polylepis polylepis
- -:400> 165
- Lou Gln His Arg Thr Phe Cys Lys Leu Pro Ala Glu Pro Gly Pro Cys 1 0 15
- Lys Ala Ser Ile Pro Ala Phe Tyr Tyr Asn Trp Ala Ala Lys Lys Cys 20 30
- Gln Leu Phe His Tyr Gly Gly Cys Lys Gly Asn Ala Asn Arg Phe Ser 35 40 45

Thr Ile Glu Lys Cys Arg His Ala Cys Val Gly

<210> 166 <211> 61 <212> PRT <213> Vipera ammodytes

<400> 166

Glx Asp His Pro Lys Phe Cys Tyr Leu Pro Ala Asp Pro Gly Arg Cys

Lys Ala His Ile Pro Arg Phe Tyr Tyr Asp Ser Ala Ser Asn Lys Cys

Asn Lys Phe Ile Tyr Gly Gly Cys Pro Gly Asn Ala Asn Asn Phe Lys

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Thr Trp Asp Glu Cys Arg His Thr Cys Val Ala Ser Gly Ile

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Asn Ala Leu Ile Pro Ala Phe Tyr Tyr Asn Ser His Leu His Lys Cys 20 25 30

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Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe His Thr Leu 40

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Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu

Lys Glu Cys Leu Gln Thr Cys Arg 50

<210> 171

<211> 61

<212> PRT

<213> Homo sapiens

<400> 171

Thr Val Ala Ala Cys Asn Leu Pro Val Ile Arg Gly Pro Cys Arg Ala Page 71

Phe Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu 30

Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu 40

Lys Glu Cys Arg Glu Tyr Cys Gly Val Pro Gly Asp Glu 50 55 60

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Glu Thr Leu Cys Arg Cys Glu Cys Leu Val Tyr Pro

<210> 173

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Asp His Leu Cys Arg Cys Glu Cys Glu Leu Tyr Arg 50

+210 - 174

x211→ 58 3212→ PRT 3213→ Bos taurus

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Phe Val Tyr Gly Gly Cys Lys Ala Lys Ser Asn Asn Phe Arg Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

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Cys Arg Ala Gly Phe Lys Arg Tyr Asn Tyr Asn Thr Arg Thr Lys Gln 25

Cys Glu Pro Phe Lys Tyr Gly Gly Cys Lys Gly Asn Gly Asn Arg Tyr

Lys Ser Glu Gln Asp Cys Leu Asp Ala Cys Ser Gly Phe

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- <213> Bos taurus

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Phe Leu Tyr Gly Gly Cys Met Gly Asn Leu Asn Asn Phe Leu Ser Gln 40

Lys Glu Cys Leu Gln Thr Cys Arg

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- <211> 61 <212> PRT <213> Bos taurus

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Phe Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Arg

Phe Ser Tyr Gly Gly Cys Lys Gly Asn Gly Asn Lys Phe Tyr Ser Gln

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<223> Isoaprotinin 1

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Phe Val Tyr Gly Gly Cys Lys Ala Lys Ser Asn Asn Phe Arg Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 5.0

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<213 - Artificial

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<223 · synthetic, SfiI restriction site

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44)) - 184

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cog gat the tgt etc gag cog coa tat act ggg coe tge aaa gog ego Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Arg 25 30 35 40	208				
ato ato ogt tat the tad aad got aaa goa gge etg tge dag abd tht Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr Phe 45 50 55	256				
gta tac ggt ggt tgc cgt gct aag cgt aac aac ttt aaa tcg gcc gaa Page 77	3-04				

Ladner7L.ST25.txt Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala Glu 60 65 70	
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Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys 50	
Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly 65 70 75 80	
Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln 85 90 95	
Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val 100 100	
Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser 115 120 125	

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Lys Al 13						
13						
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taccaq	teta agecegeeta atgageggge ttttttttte etgaggeagg tgageg	176				
J						
	189					
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	Artificial					
<220>						
<223>	synthetic, Table 27 DNA_synth1, upper strand					
	189	ъ́0				
_	gtog gacogtatoc aggotttaca otttatgott coggotogta taatgtgtgg					
aattgt	gage ggataacaat teetagggee geteettega aagegtetta atagtgaggt	120				
taccag	tota ageoegeeta atgageggge ttttttttte etgaggeagg tgageg	176				
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	taaq acqctttcqa aqqaqcqqcc ctaggaattg	100				
Gaudaat	taag acgotttega aggageggee ctaggaattg	100				
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K2127 K2137	DNA Artificial					
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4231. 4222/	(15)(162)					
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	Page 79					

Ladner7L.ST25.txt gcaccaacgc ctaggaggct cast atg aag aaa tct ctg gtt ctt aag gct Met Lys Lys Ser Leu Val Leu Lys Ala 1 5	51
age gtt get gte geg ace etg gta eeg atg etg tet ttt get egt eeg Ser Val Ala Val Ala Thr Leu Val Pro Met Leu Ser Phe Ala Arg Pro 10 15 20 25	99
gat tto tgt oto gag oog ooa tat act ggg ooc tgo aaa gog ogo ato Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile 30 35 40	147
atc cgt act tcg aaa gcggotgcg Ile Arg Thr Ser Lys 45	171
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<220> <223> synthetic, Table 28 DNA_Seq 2/Protein	
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Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu 1 5 10	
Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro 20 25 30	
Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Thr Ser Lys 35 40 45	
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tatastgggs cotgoaaago gogoatoato ogtaottoga aagoggotgo g	171
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<400 ≥ 194 Page 80	

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Ladner7L.ST25.txt
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gagacagaaa tooggacgag caaaagacag catogg 96
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tgc cag acc ttt gta tac ggt ggt tgc cgt gct aag cgt aac aac ttt Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe 15 20 25 30
aga tog god gaa gat tgo atg ogt acc tgo ggt ggo god got gaa ttt Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Phe 35 40 45
act tog aaa gegtegeeg 165 Thr Ser Lys
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Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser 20 25 30
Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Phe Thr Ser 35 40 45
Lys
<210 > 197 <211 > 165

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tttgtataeg gtggttgeeg tgetaagegt aacaaettta aateggeega agattgeatg -1	20
egtacetgeg gtggegeege tgaatttact tegaaagegt egeeg 1	65
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egatttaaag ttgttaeget tageaeggea aceaeeg	97
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tet etg caa get tet get ace gaa tat ate ggt tae geg tgg gee atg Ser Leu Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met 15 20 25 30	99
gtg gtg gtt atc gtt ggt gct acc atc ggt atc aaa ctg ttt aag aaa Val Val Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys 35 40 45	47
tit act tog aaa gogtogggo 10 Phe Thr Ser Lys 50	68
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Glm Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val 20 25 30
Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr 35 40 45
Ser Lys 50
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<400> 201 gstegecetg gegeegetga aggtgatgat eeggeeaaag eggeetttaa etetetgeaa 60
gettetjeta eegaatatat eggttaegeg tgggeeatgg tggtggttat egttggtget 120
accatoggta toaaactgtt taagaaattt acttogaaag ogtottga 168
<pre><210> 202 <211> 93 <210> DNA <213> Artificial</pre>
<220> <123> synthetic, Table 33 lower strnad DNA_synth4
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aabbacbacb atggcccacg cgtaaccgat ata 93
<pre>#2109 203 #2119 41 #2129 PRT #2139 Artificial</pre>
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Gly Xaa Cys Gln Thr Phe Xaa Tyr Gly Gly Cys Arg Ala Lys Arg Asn
                                    25
             20
Asn Phe Lys Ser Xaa Glu Asp Cys Met
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       130
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\langle 2223 \rangle n is a, c, g, or t
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\langle 223 \rangle n is a, c, g, or t
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                                                                               60
tyccagacct tcnnktacgg tggttgccgt gctaagcgta acaactttaa atctnnkgag
                                                                              120
                                                                              130
gattgcatgc
<210> 205
<211>
       73
<212> DNA
<213> Artificial
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<223> synthetic, Table 34 lower stand vg DNA
<220>
<221> misc_feature
くじごじン
       (13)...(14)
<223>
      n is a, c, g, or t
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                                                                               60
                                                                               78
ctaacgtacg cacccacc
<3105 306
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<213> Artificial
< 0.00>
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Let Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Asp Ile Gln Arg Tyr
Pho Tyr Asn Ala Lys Glu Gly Leu Cys Gln Thr Phe Ser Tyr Gly Gly
                                    25
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Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Glu Asp Cys Met Arg

35 Thr Cys Gly Gly Ala 50 <210> 207 <211> 156 <212> DNA <213> Artificial <220> synthetic, Table 35 DNA, set #2 of BPII2.1 <223> <400> 207 stogagoogo catatactgg gocotgoaaa goggatatoo agogttattt otacaacgot 60 gagggeetgt gecagacett ttegtaeggt ggttgeegtg etaagegtaa caactttaaa 120 156 togtgggaag attgcatgcg tacctgcggt ggcgcc <210> 208 <211> 41 <212> PRT <213> Artificial <220> <123> synthetic, Table 39 protein library set #2 BPII2.2 <220 > <221> misc feature <222> (4)...(4)<2003> Maa can be any naturally occurring amino acid <220> <221> misc_feature <2222> (7). $\overline{\text{T}}$ (7) <223> Maa can be any naturally occurring amino acid <220> <221> misc_feature <222> (9). $\overline{}$ (10)
<223> Maa can be any naturally occurring aming acid <0.205 <!21> misd_feature $\stackrel{<}{<}123>$ (17) $\stackrel{<}{<}$ (17) $\stackrel{<}{<}$ (17) and the any naturally occurring amino acid <22005 %121> misc_feature
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%213> Maa can be any naturally occurring amino acid くじこじと misc_feature 38) ... (38) <113> Maa can be any naturally occurring amino acid Page 86

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Gly Pro Cys Xaa Ala Asp Xaa Gln Xaa Xaa Phe Tyr Asn Ala Lys Glu
                                        10
Maa Leu Cys Maa Kaa Phe Ser Tyr Gly Gly Cys Arg Ala Lys Arg Asn
Asn Phe Lys Ser Trp Xaa Asp Cys Met
         35
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くごこりと
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<111> (69)..(70)
<123> n is a, c, g, or t
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<222> (120)..(121)
<223> r. is a, c, g, or t
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                                                                            60
tgtgcnnknn kttttegtae ggtggttgee gtgetaageg taacaacttt aaategtggn
                                                                            120
                                                                            132
nkgattgcat gc
<210> 210
<211> 61
<212> DNA
<213> Artificial
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<ili><ili><ili> misc_feature<ili><ili><ili>(42)
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61					
<210> 211 <211> 53 <212> PRT <213> Artificial					
<223> synthetic, Table 40 protein library set #2 BPII2.2					
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Phe Tyr Asn Ala Lys Glu Phe Leu Cys Ser Ala Phe Ser Tyr Gly Gly 20 25 30					
Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Gln Asp Cys Met Arg 35 40 45					
Thr Cys Gly Gly Ala 50					
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asagagttte tgtgetetge titttegtae ggtggttgee gtgetaageg taacaacttt 120					
asstogtggc aggattgcat gcgtacctgc ggtggcgcc 159					
<pre><210 > 013 <211 > 36 <212 PRT <213 Artificial</pre>					
<pre><210.2 <2213.2 synthetic, Table 41 proetin library set #2 of BPII2.3</pre>					
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<2225
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       (12)..(12)
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Leu Glu Pro Xaa Tyr Xaa Gly Pro Cys Glu Ala Xaa Val Gln Asn Xaa
Phe Tyr Asn Ala Lys Xaa Phe Xaa Cys Ser Xaa Phe Xaa Tyr Gly Gly
Cys Arg Ala Lys
         35
マン10ン 214
<211> 117
<2100 DNA
<0130 Artificial
<12200+
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422004
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4332 > (87)^{T}. (88)
4223 > n is a, c, g, or t
<2230>
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\langle (2222 \rangle (93) \dots (94) \rangle
<223> n is a, c, g, or t
<400> 214
                                                                            60
cgagectget egageegymg tatvmgggge eetgegagge gnnkgtteag aattdkttet
acaacqccaa qvagtttntk tqctctnnkt ttnnktacqq tqqttqccqt qctaaqc
<210> 215
<211> 67
<212> DNA
<213> Artificial
<220>
<223> synthetic, Table 41 lower strand vg DNA
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<2221>
      misc_feature
<2332>
       (29)..(30)
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                                                                              60
gadoggo
                                                                              67
<210> 216
<011> 53
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<013> Artificial
<223> synthetic, Table 42 protein from set #2 BPII2.3
<40€> 216
Leu Glu Pro Glu Tyr Gln Gly Pro Cys Glu Ala Ala Val Gln Asn Trp
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Ladner7L.ST25.txt Gln Phe Met Cys Ser Leu Phe His Tyr Gly Gly Phe Tyr Asn Ala Lys 20 25 30

Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Gln Asp Cys Met Arg 35 40 45

Thr Cys Gly Gly Ala

<210> 217 <211> 159 <212> DNA

<213> Artificial

<220>

<223> synthetic, Table 42, DNA from set #2 of BPII 2.3

<400> 217

aaacagttta tgtgctctct ttttcattac ggtggttgcc gtgctaagcg taacaacttt 120 aaategtggc aggattgcat gcgtacctgc ggtggcgcc 159

<210> 218 <211> 583 <212> DNA <213> Artifici

<213> Artificial

<220 >

<223> synthetic, pbd mod14, Table 101a

<400> 218

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<210 > 219

<211> 584

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< 0.03 <	synthetic.	Tabla	101h

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atctctggtt	cttaaggcta	gegttgetgt	cgcgaccctg	gtacctatgt	tgtccttcgc	180
togtooggat	ttctgtctcg	agccaccata	cactgggccc	tgcaaagcgc	gcatcatccg	240
ctatttctac	aatgctaaag	caggcctgtg	ccagacettt	gtatacggtg	gttgccgtgc	300
taagcgtaac	aactttaaat	cggccgaaga	ttgcatgcgt	acctgeggtg	gcgccgctga	360
aggtgatgat	ccggccaagg	cggccttcaa	ttctctgcaa	gcttctgcta	ccgagtatat	420
tggttacgcg	tgggccatgg	tggtggttat	cgttggtgct	accatcggga	tcaaactgtt	480
caagaagttt	acttcgaagg	cgtcttaatg	atagggttac	cagtctaagc	ccgcctaatg	540
agegggettt	tittttatcg	agacetgeag	gtegaeegge	atgc		584

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<212> PRT <213> Artificial

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<223> synthetic, Table 102a protein

<400> 220

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Leu Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro

Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn

Ala Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala

Lys Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly 65 70 75 80

Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu

Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val 100 105

Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr 115 120 125

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Ser Lys Ala Ser 130					
<210> 221 <211> 556 <212> DNA <213> Artificial					
<220> <223> synthetic, Table 102a DNA					
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	120				
	180				
	240				
	300				
	360				
	420				
tggtggttat egttggtget accateggga teaaactgtt caagaagttt acttegaagg	480				
egtettaatg atagggttae cagtetaage eegeetaatg agegggettt tittitateg	540				
agacetgeag geatge	556				
<210> 222 <211> 132 <212> PRT <213> Artificial					
<220> <223> synthetic, Table 102b protein					
<490> 222					
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Lou Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro 20 25 30					
Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn 35 40 45					
Ala Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala 50 55 60					
Lys Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly 65 70 75 80 Page 93					

Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu 85 Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val 100 105 110 Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr 115 Ser Lys Ala Ser 130 <210> 223 <211> 563 <212> DNA <213> Artificial <220> <223> synthetic, Table 102b DNA <400> 223 ggatecteta gagteggett tacaetttat getteegget egtataatgt gtggaattgt 60 gagogotoac aattgagete agaggottac tatgaagaaa tototggtto ttaaggotag 120 egitigetigte gegaccetgg tacctatgit giccitiegsi egiteeggatt tetgitetega 180 gosascatad astgggsoot goaaagogog catcatoogo tatttotada atgotaaago 240 aggestative caracetting talaceging tigeoginget aagegiaaca actitiaaate 300 360 ggoogaagat tgoatgogta cotgoggtgg cgccgctgaa ggtgatgatc cggccaaggc 420 gacetteaat tetetgeaag ettetgetae egagtatatt gyttaegegt gggeeatggt ggtggttate gttggtgeta ceategggat caaactgtte aagaagttta cttegaagge 480 gtottaatga tagggttacc agtotaagco ogootaatga gogggotttt tttttatoga 540 563 gacctgcagg togaccggca tgc <210 → 224 <211> 132 <212> PRT <213> Artificial < 220x <223> synthetic, Table 103 protein

4400 - 214

Leu Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro 20 25 30

Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn 35 40 45						
Ala Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala 50 55 60						
Lys Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly 65 70 75 80						
Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu 85 90 95						
Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val 100 105 110						
Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr 115 120 125						
Ser Lys Ala Ser 130						
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ageteaggag gettactatg aagaaatete tggttettaa ggetagegtt getgtegega 120	0					
coordigates targetegres trogetegres eggattreety teregagesa coaracacty 130	0					
ggeoctgeaa agegegeate ateegetatt tetasaatge taaageagge etgtgeeaga 240	0					
cottograta egytggttge egtgetaage gtaabaactt taaateggee gaagattgea 300	O					
tgegraderg eggtggegee getgaaggtg atgateegge caaggeggee tteaattete 360	O					
tycaagotic tgotacogag tatattggtt acgogtgggc catggtggtg gttatogttg 400	J					
gigotaccat ogggatcaaa otgitcaaga agittaciic gaaggogici taatgatagg 480	Э					
ghtaccaged taagoooged taatgagogg gotttttttt tatoga 530	5					
KC100+ 206 KC110+ 68 KC100+ DNA KC130+ Artificial						

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<1200×

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	226 acac tttatgette eggetegtat aatgtgtgga attgtgageg eteacaattg	60
agetea	āā	68
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cctatg	t	67
	228 70 DNA Artificial	
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	229 67 DNA Artificial	
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gatscg	goda aggogg	76

+2102 <2112 <2132 <2132	231 67 DNA Artificial	
H2202 H2234	cligo #806 Table 104-105	
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tggttaf	t	б 7
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atagggf	tta	69
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	233 taag ooogeetaat gagegggett tittitta	38
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<220× <223>	oligo #810 Table 104-105	
k4000 nogataa	234 asaa aaaagooogo toattaggo	29
4211 · 4012 /		
K220 + K223 +	oligo #811 Table 104-105	
k400. gggatta	-235 agad tggtaaccot atcattaaga ogoottogaa gtaaacttot tgaacagttt	60
gatocc	gat	69

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agett		65
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	238 67 DNA Artificial	
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tgottta	a	67
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<2200 <223.÷	cligo #815 Table 104-105	
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cagaaat	toog ga	72
	6 0	
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	addy acadeatagy taccagggte gegacageda egetageett dagadeedga	65
gattt		63
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coggaa	g	00
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~,,-,-		
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	synthetic 803:816 junction	
<400> tataat	- 243 taga tag	13
<i>y</i>		
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	synthetic 804:815 junction	
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	Artificial	
<2200		

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ccttcaat	te tetge	15
2010s 0	17	
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03013909		
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ccagtota		13
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	hoA signal	
4400> C	49	
Most Ive	Gln Ser Thr Ile Ala Leu Ala Leu Leu Pro Leu Leu Phe Thr	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5 10 15	
Pro Val	Thr Lys Ala Arg Thr 20	
<210≥ 2	5.0	
<211 × 2	7	
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Ala Gly Thr Ala Asn Ala Ala Glu
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Met Ser Ile Gln His Phe Arg Val Ala Leu Ile Pro Phe Phe Ala Ala
                               10
Phe Cys Leu Pro Val Phe Ala His Pro
                                   25
             20
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<211> 27
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<2223 > lamB signal
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Gly Val Met Ser Ala Gln Ala Met Ala Val Asp 20

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<220>

<223> Lpp signal

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Leu Leu Ala Gly Cys Ser

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<223> gpIII signal

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His Ser Ala Glu Thr Val Glu 20

<210> 256 <211> 21 <212> PRT

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<223> gpIII-BPTI signal

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Gly Ala Arg Pro Asp 20

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Val Pro) Met	Leu 20	Ser	Phe	Ala	Ala	Glu 25	Gly	Asp	Asp						
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Met Lys 1	s Lys	Ser	Leu 5	Val	Leu	Lys	Ala	Ser 10	Val	Ala	Val	Ala	Thr 15	Leu		
Val Pro) Met	Leu 20	Ser	Phe	Ala	Arg	Pro 25	Asp								
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Met Lys	s Lys	Ser	Leu 5	Val	Leu	Leu	Ala	Ser 10	Val	Ala	Val	Ala	Thr 15	Leu		
Val Pro) Met	Leu 20	Ser	Phe	Ala	Ala	Glu 25	Gly	Asp	Asp						
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actights	gaaa (gttgi	ttaç	gc aa	aaaco	ccat	aca	agaaa	aatt	catt	tact	aa o	agtat	ggaaa	120	,
gaugāca	aaa (ottta	agato	og tt	acgo	ctaac	c tat	gag	ggtt	gtct	gtgg	gaa t	tgata	cagge	180	
gttgtag	gttt (gtaci	iggt	ga co	gaaac	ctcaç	g tgt		ggta e 10		gggtt	icc t	tatto	ggott	240	

gctatccctg aaaatgaggg	tggtggctct	gagggtggcg	gttctgaggg	tggcggttct	300
gagggtggcg gtactaaacc	tcctgagtac	ggtgatacac	ctattccggg	ctatacttat	360
atcaaccete tegaeggeae	ttatccgcct	ggtactgagc	aaaaccccgc	taatcctaat	420
cottototty aggagtotca	gcctcttaat	actttcatgt	ttcagaataa	taggttccga	480
aataggcagg gggcattaac	tgtttatacg	ggcactgtta	ctcaaggcac	tgaccccgtt	540
aaaacttatt accagtacac	tootgtatca	tcaaaagcca	tgtatgacgc	ttactggaac	600
ggtaaattca gagactgcgc	tttccattct	ggctttaatg	aggatccatt	cgtttgtgaa	660
tatcaaggee aategtetga	cctgcctcaa	cctcctgtca	atgctggcgg	cggctctggt	720
ggtggttatg gtggaggata	tgagggtggt	ggctctgagg	gtggcggttc	tgagggtggc	780
ggctctgagg gaggeggtte	cggtggtggc	totggttoog	gtgattttga	ttatgaaaag	840
atggcaaacg ctaataaggg	ggctatgacc	gaaaatgccg	atgaaaacgc	gctacagtct	900
gacgctaaag gcaaacttga	ttctgtcgct	actgattacg	gtgctgctat	cgatggtttc	960
attggtgaeg tttceggeet	tgctaatggt	aatggtgcta	ctggtgattt	tgctggctct	1020
aattoocaaa tggotoaagt	cggtgacggt	gataattcac	ctttaatgaa	taatttccgt	1080
caatatttac cttccctccc	tcaatcggtt	gaatgtcgcc	cttttgtctt	tagcgctggt	1140
aaaccatatg aattttctat	tgattgtgac	aaaataaact	tattccgtgg	tgtctttgcg	1200
tttcttttat atgttgccac	ctttatgtat	gtattttcta	cgtttgctaa	catactgcgt	1260
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<223> synthetic cleavage site of wild-type pIII, Table 110(A)

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His Ser Ala Glu Thr Val 20

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<211> DNA
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actgtt 66
<pre>::210</pre>
<pre><320> <223> synthetic cleavage site of modified pIII, Table 110(B)</pre>
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Gly Ala Ala Glu Thr Val
<210> 264 <211> 66 <212> DNA <213> Artificial
<220> <223> synthetic DNA of Table 110(B) with NarI site
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actgtt 66
<pre><010> 265 <011> 84 <212> PRT <013> Artificial</pre>
<220> <2210> <2223> synthetic protein of Table 111
<400 > 265
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Gly Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys 20 25 30
Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys 35 40 45
Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys

Ladner7L.ST25.txt Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Gly Ala Ala Glu 70 80

Thr Val Glu Ser

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^{·:110+ 267}

H211. 567

^{4213 -} Artificial

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ctt aag get age gtt get gte geg ace etg gta eet atg ttg tee tte Leu Lys Ala Ser Val Ala Val Ala Thr Leu Val Pro Met Leu Ser Phe 10 15 20	61												
get egt eeg gat tte tgt ete gag eea eea tae aet ggg eee tge aaa 20 Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys 25 30 35	09												
gog ogs atc atc ogs tat tto tas aat got aaa goa ggo otg tgo oag Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln 40 45 50	57												
ace ttt gta tac ggt ggt tge egt get aag egt aac aac ttt aaa teg 30 Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser 55 60 65 70	05												
goo gaa gat tgo atg ogt acc tgo ggt ggo gco gct gaa ggt gat gat Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Gly Asp Asp 75 80 85	53												
eeg gee aag geg gee tte aat tet etg eaa get tet get ace gag tat Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr Glu Tyr 90 95 100	01												
att ggt tac gcg tgg gcc atg gtg gtt atc gtt ggt gct acc atc The Gly Tyr Ala Trp Ala Met Val Val Val Ile Val Gly Ala Thr Ile 105 110 115	49												
ggg atc aaa ctg ttc aag aag ttt act tcg aag gcg tct taatgatagg 49 Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser Lys Ala Ser 120 125 130	98												
gttaccagte taageeegee taatgagegg gettttttt tategagace tgeaggtega 55	58												
coggcatge 56	67												
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K2200 K1230 synthetic protein of Table 112, DNA													
K.4 DOW 1 LIGB													
Mat Tue Tue Cor Tay Wal Tou Tue Ala Cor Wal Ala Wal Ala Tor Tou													

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu Page 107

Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro 20 25 30	
Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala 35 40 45	
Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys 50 55 60	
Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly 65 70 75 80	
Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln 85 90 95	
Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val 100 100 110	
Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser 115 120 125	
Lys Ala Ser 130	
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goa sto tta cog tta otg ttt acc oct gtg aca aaa god ogt ocg gat Ala Leu Leu Pro Leu Leu Phe Thr Pro Val Thr Lys Ala Arg Pro Asp 10 15 20	164
tto tit oto gag oca oca tao act ggg oco tigo aaa gog ogo ato ato Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile 25 30 35	212
ege tat tie tae aat get aaa gea gge eig ige eag ace tit gia tae Page 108	260

Ladner7L.ST25.txt Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr 45 ggt ggt tgc cgt gct aag cgt aac aac ttt aaa tcg gcc gaa gat tgc 308 Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys 60 65 356 atg ogt acc tgc ggt ggc gcc gct gaa ggt gat gat ccg gcc aag gcg Met Arg Thr Cys Gly Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala 404 ged the aat tot etg caa get tot get acc gag tat att ggt tad geg Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala tgg gcc atg gtg gtt atc gtt ggt gct acc atc ggg atc aaa ctg Trp Ala Met Val Val Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu 452 115 105 110 tto aag aag tit act tog aag gog tot taatgatagg gitaccagto 499 Phe Lys Lys Phe Thr Ser Lys Ala Ser 125 550 taageeegee taatgagegg gettttttt tategagaee tgeaggtega e <210> 270 <211> 127 <212> PRT <213> Artificial <220> <223> synthetic Table 113 DNA/Protein <400> 270 Met Lys Gln Ser Thr Ile Ala Leu Leu Pro Leu Leu Phe Thr Pro Val 10 Thr Lys Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu 35 40 Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe 50 Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val Ile Val Gly Ala

Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser Lys Ala Ser 115 120 125

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	<220. <223. synthetic Table 116 DNA/Protein															
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		ege Arg 35														144
		ttt Phe														192
tog Ser 65	god Ala	gaa Glu	gat Asp	tgc Cys	atg Met 70	cgt Arg	acc Thr	tgc Cys	ggt Gly	ggc Gly 75	gcc Ala	ggc Gly	gcc Ala	gct Ala	gaa Glu 30	240
		gaa Glu														288
aac Asn	gtc Val	tgg Trp	aaa Lys 100	gac Asp	gac Asp	aaa Lys	act Thr	tta Leu 105	gat Asp	ogt Arg	tac Tyr	gct Ala	aac Asn 110	tat Tyr	gag Glu	336
gạt Gly	tgt Cys	otg Leu 115	tgg Trp	aat Asn	gct Ala	aca Thr	ggc Gly 120	gtt Val	gta Val	gtt Val	tgt Cys	act Thr 125	ggt Gly	gac Asp	gaa Glu	384
		tgt Cys														432
aat Asn 14E	gaj Glu	ggt Gly	ggt Gly	ggc Gly	tct Ser 150	gag Glu	gyt Gly	ggc Gly	ggt Gly	tot Ser 155	gag Glu	ggt Gly	ggc Gly	ggt Gly	tot Ser 160	480
gag Glu	ggt	ggc	ggt Gly	ast Thr 165	aaa Lys	cct Pro	aat Pro	gag Glu	tac Tyr 170	ggt Gly	gat Asp	aca Thr	oct Pro	att Ile 175	ccg Pro	528
Gly gg:	tat Tyr	act Thr	tat Tyr	ato Tle	aac Asn	cct Pro	ct.c Deu	gac Asp	Gly	act Thr e 11	Tyr	ccg Pro	cct Pro	ggt Gly	act Thr	57€

190

624 gag caa aac coo got aat cot aat cot tot ott gag gag tot cag cot Glu Gln Asn Pro Ala Asn Pro Asn Pro Ser Leu Glu Glu Ser Gln Pro 200 672 ctt aat act tto atg ttt cag aat aat agg tto cga aat agg cag ggg Leu Asn Thr Phe Met Phe Gln Asn Asn Arg Phe Arg Asn Arg Gln Gly 215 720 gea tta act gtt tat acg ggc act gtt act caa ggc act gac ccc gtt Ala Leu Thr Val Tyr Thr Gly Thr Val Thr Gln Gly Thr Asp Pro Val 230 235 768 asa act tat tac cag tac act cet gta tea tea asa gee atg tat gae Lys Thr Tyr Tyr Gln Tyr Thr Pro Val Ser Ser Lys Ala Met Tyr Asp 245 250 816 get tac tgg aac ggt aaa ttc aga gac tgc get ttc cat tct ggc ttt Ala Tyr Trp Asn Gly Lys Phe Arg Asp Cys Ala Phe His Ser Gly Phe 364 aat gag gat coa tto gtt tgt gaa tat caa ggo caa tog tot gad otg Asn Glu Asp Pro Phe Val Cys Glu Tyr Gln Gly Gln Ser Ser Asp Leu cet can cet cet gte aat get gge gge gge tet ggt ggt ggt tet ggt 912 Pro Gln Pro Pro Val Asn Ala Gly Gly Gly Ser Gly Gly Gly Ser Gly 290 gge gge tot gag ggt ggt gge tot gag ggt gge ggt tot gag ggt gge 950 Gly Gly Ser Glu Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly 3:05 gge tot gag gga gge ggt toe ggt ggt gge tot ggt toe ggt gat ttt Gly Ser Glu Gly Gly Ser Gly Gly Gly Ser Gly Ser Gly Ser Gly Asp Phe 1008 325 330 1056 gat tat gaa aag atg gea aac get aat aag gjg get atg ace gaa aat Asp Tyr Glu Lys Met Ala Asn Ala Asn Lys Gly Ala Met Thr Glu Asn ged gat gaa aad geg eta dag tot gad get aaa ggd aaa ott gat tot 1104 Ala Asp Glu Ash Ala Leu Gln Ser Asp Ala Lys Gly Lys Leu Asp Ser 355 360 gte get act gat tac ggt get get atc gat ggt ttc att ggt gac gtt 1152 Val Ala Thr Asp Tyr Gly Ala Ala Ile Asp Gly Phe Ile Gly Asp Val 1200 too ggo off got aat ggt aat ggt got act ggt gat tit get gge tet Ser Gly Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp Phe Ala Gly Ser 390 395 aat too caa atg got caa gto ggt gac ggt gat aat toa oot tta atg Asn Ser Gln Met Ala Gln Val Gly Asp Gly Asp Asn Ser Pro Leu Met 1248 410 405 aat aat the egt caa tat tha bet tee etc eet caa teg git gaa tot 1296 Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln Ser Val Glu Cys ego dot tit gto tit ago got ggt ama och that gma tit tot att gat 1344 Arg Pro Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu Phe Ser Ile Asp Page 111

440

tgt Cys	gac Asp 450	aaa Lys	ata Ile	aac Asn	tta Leu	ttc Phe 455	Arg	ggt Gly	gtc Val	ttt Phe	gcg Ala 460	ttt Phe	ctt Leu	tta Leu	tat Tyr	1392
				atg Met												1440
	aag Lys			taa												1455

<210> 272 <211> 484 <212> PRE

<212> PRT <213> Artificial

<220>

<223> synthetic Table 116 DNA/Protein

<400> 272

Gly Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys 20 25 30

Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys 35 40 45

Gin Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys 50 60

Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Gly Ala Ala Glu 65 70 75 80

Thr Val Glu Ser Cys Leu Ala Lys Pro His Thr Glu Asn Ser Phe Thr 85 90 95

Asn Val Trp Lys Asp Asp Lys Thr Leu Asp Arg Tyr Ala Asn Tyr Glu

Gly Cys Leu Trp Asn Ala Thr Gly Val Val Val Cys Thr Gly Asp Glu

Thr Gln Cys Tyr Gly Thr Trp Val Pro Ile Gly Leu Ala Ile Pro Glu
130 135 140

Asn Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Ser 145 150 155

Glu	Gly	Gly	Gly	Thr 165	Lys	Pro	Pro	Glu	Tyr 170	Gly	Asp	Thr	Pro	Ile 175	Pro
Gly	Tyr	Thr	Tyr 180	Ile	Asn	Pro	Leu	Asp 185	Gly	Thr	Tyr	Pro	Pro 190	Gly	Thr
Glu	Gln	Asn 195	Pro	Ala	Asn	Pro	Asn 200	Pro	Ser	Leu	Glu	Glu 205	Ser	Gln	Pro
Leu	Asn 210	Thr	Phe	Met	Phe	Gln 215	Asn	Asn	Arg	Phe	Arg 220	Asn	Arg	Gln	Gly
Ala 225	Leu	Thr	Val	Tyr	Thr 230	Gly	Thr	Val	Thr	Gln 235	Gly	Thr	Asp	Pro	Val 240
Lys	Thr	Tyr	Tyr	Gln 245	Tyr	Thr	Pro	Val	Ser 250	Ser	Lys	Ala	Met	Tyr 255	Asp
Ala	Tyr	Trp	Asn 260	Gly	Lys	Phe	Arg	Asp 265	Cys	Ala	Phe	His	Ser 270	Gly	Phe
Asn	Glu	Asp 275	Pro	Phe	Val	Cys	Glu 280	Tyr	Gln	Gly	Gln	Ser 285	Ser	Asp	Leu
Pro	Gln 290	Pro	Pro	Val	Asn	Ala 295	Gly	Gly	Gly	Ser	Gly 300	Gly	Gly	Ser	Gly
Gly 305	Gly	Ser	Glu	Gly	Gly 310	Gly	Ser	Glu	Gly	Gly 315	Gly	Ser	Glu	Gly	Gly 320
			-	325	_				330					Asp 335	
Asp	Tyr	Glu	Lys 340	Met	Ala	Asn	Ala	Asn 345	Lys	Gly	Ala	Met	Thr 350	Glu	Asn
Ala	Asp	Glu 355	Asn	Ala	Leu	Gln	3er 360	Asp	Ala	Lys	Gly	Lys 365	Leu	Asp	Ser
Val	Ala 370	Thr	Asp	Tyr	Gly	Ala 375	Ala	Ile	Asp	Gly	Phe 380	Ile	Gly	Asp	Val
Ser 385	Gly	Leu	Ala	Asn	Gly 390	Asn	Gly	Ala	Thr	Gly 395	Asp	Phe	Ala	Gly	Ser 400
Asn	šer	Gln	Met	Ala 405	Gln	Val	Gly	Asp	Gly 410	Asp	Asn	Ser	Pro	Leu 415	Met

Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln Ser Val Glu Cys 420 425 430

Arg Pro Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu Phe Ser Ile Asp 435 440 445

Cys Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala Phe Leu Leu Tyr 450 460

Val Ala Thr Phe Met Tyr Val Phe Ser Thr Phe Ala Asn Ile Leu Arg 465 470 475 480

Asn Lys Glu Ser

<210> 273

<211> 131

<212> PRT

<213> Artificial

<220>

<223> synthetic, amino acid Seq 2

<400> 273

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu 1 $$ 5 $$ 10 $$ 15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro 20 25 30

Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala 35 40 45

Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys 50 55 60

Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly 65 70 75 80

Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln 35 90 95

Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val 100 105

Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser

Lys Ala Ser

130

<210> 274 <211> 23 <212> PRT <213> Artificial

<220>

<223> Fig. 15, residues 20-42 of scorpion toxin

<400> 274

Gly Glu Asn Glu Gly Cys Asp Thr Glu Gly Lys Ala Lys Asn Gly Gly

Gly Ser Tyr Gly Tyr Cys Tyr 20